FINAL SITE INSPECTION PRIORITIZATION REPORT
FOR
HOLDEN DUMP
HOLDEN, MASSACHUSETTS

CERCLIS No. MAD980503510
TDD No. 95-07-0013

Prepared by:

Roy F. Weston, Inc. (WESTON®)
217 Middlesex Turnpike
Burlington, Massachusetts 01803

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Region I START
Reviewed and Approved:

Brian D. Carter
Site Leader

16 May 1996
Date

Joseph Schmidl
Project Leader

16 May 1996
Date

QA Review

20 May 1996
Date

Work Order No. 11098-011-001-1095-50

DISCLAIMER

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INTRODUCTION

Roy F. Weston, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) was requested by the Region I U.S. Environmental Protection Agency New England (EPA-New England), Office of Site Remediation and Restoration to perform a Site Inspection Prioritization of the Holden Dump property on River Street in Holden, Massachusetts. Tasks were conducted in accordance with the Site Inspection Prioritization scope of work and technical specifications provided by the EPA. A Site Inspection (SI) Report for the Holden Dump property was prepared by Ecology and Environment, Inc. on 6 May 1982. The SI documented groundwater contamination at the site and a leachate stream flowing from the north side of the landfill to the Quinapoxet River. On the basis of the information provided in the SI, the Holden Dump Site Inspection Prioritization was initiated.

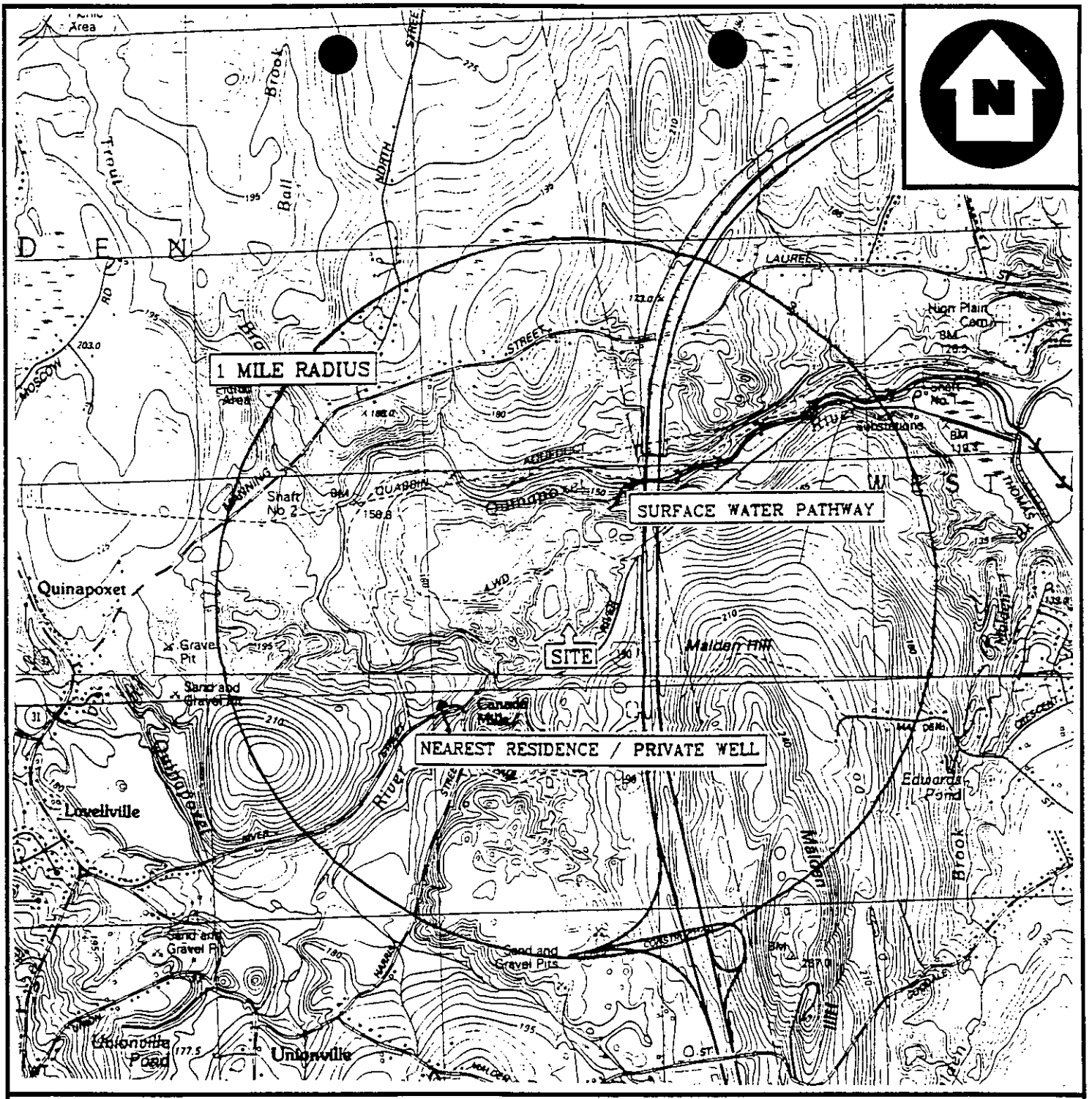
Background information used in the generation of this report was obtained through file searches conducted at the Region I U.S. EPA, Massachusetts Department of Environmental Protection (MA DEP), telephone interviews with town officials, conversations with persons knowledgeable of the Holden Dump property and conversations with other Federal, State, and local agencies.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, or local regulations. Site Inspection Prioritizations are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

Holden Dump (aka Holden Landfill) is located on River Street, in the Town of Holden, Worcester County, Massachusetts at latitude 42° 22′ 40.0″ North and longitude 71° 49′ 16.0″ West. The property is found on assessor's map no. 81, parcels Nos. 3 and 4 (Figure 1). The property is about 25 acres with the landfill occupying about 15 acres. The property has been used to dispose of municipal waste in various capacities since 1955. An engineered cap for the landfill was completed circa 1991. Currently, the southwest corner of the property is used for composting yard waste collected by the Holden Department of Public Works [1; 2; 3].

The Holden Dump property is located on a topographic high point bordered to the southeast by River Street and on the remaining sides by undeveloped property owned by the Metropolitan District Commission (MDC). A pond is located immediately west of the landfill (Figure 2). Immediately east of the landfill is a borrow pit that receives runoff from much of the property.



LOCATION MAP

HOLDEN DUMP

RIVER STREET

HOLDEN, MASSACHUSETTS

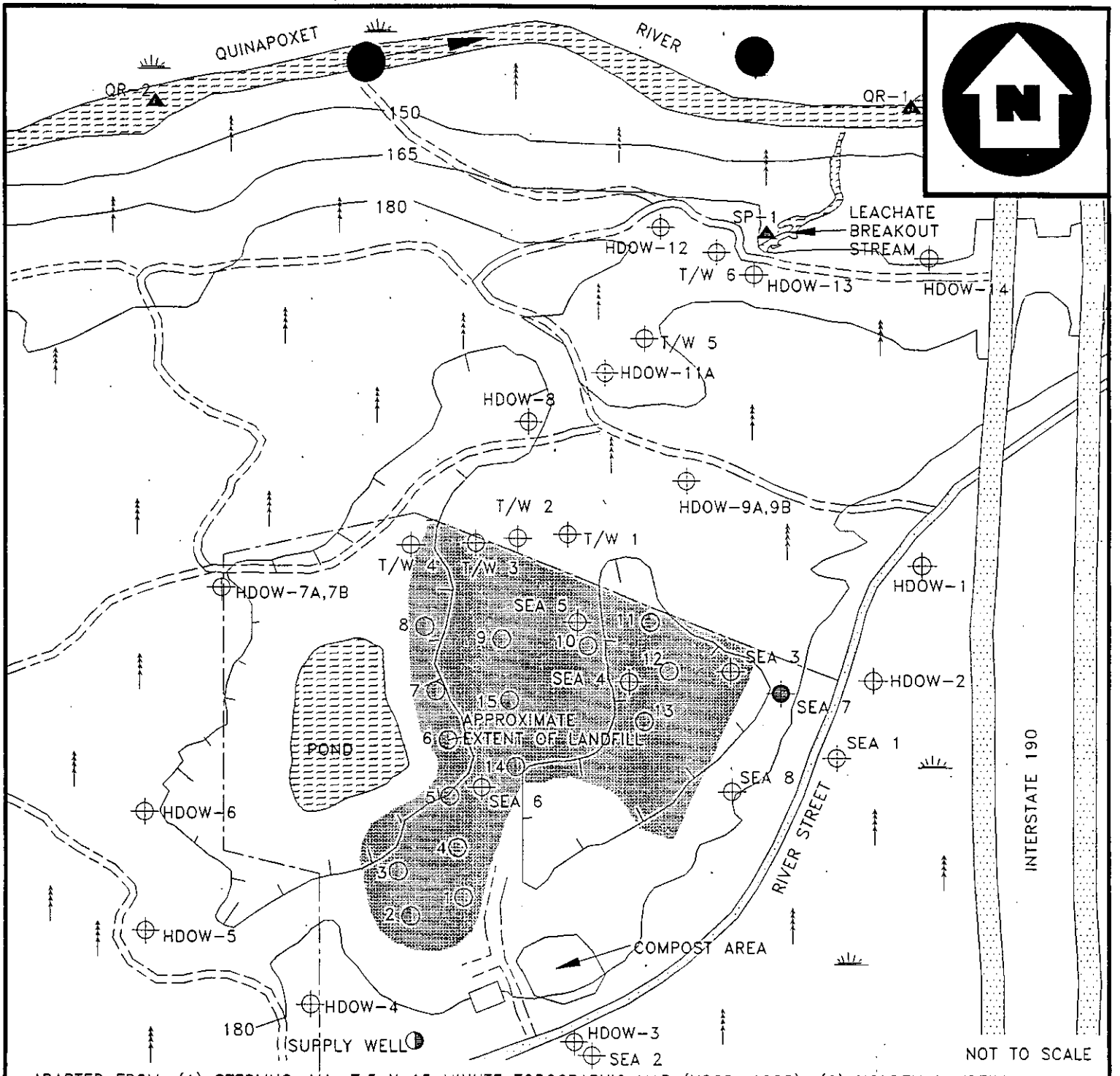
WESTON®

MANAGERS DESIGNERS/CONSULTANTS

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE
95-07-0013	B. CARTER	10/26/95

FILE NAME:	
HOLDENF1.DWG	FIGURE 1



ADAPTED FROM: (1) STERLING, MA, 7.5 X 15 MINUTE TOPOGRAPHIC MAP (USGS, 1988); (2) HOLDEN LANDFILL GAS SAMPLING, FIGURE 1 (PLOSS ASSOC., 1995); (3) HOLDEN LANDFILL STUDY, FIGURE 10 (NUS CORP, 1983); AND (4) HYDROGEOLOGIC INVESTIGATION AND DESIGN OF CLOSURE, FIGURE 1-1 (SEA CONSULTANTS, 1986)

LEGEND

- TREES
- PAVED ROAD
- DIRT PATH
- SURFACE WATER
- PROPERTY BOUNDARY
- MONITORING WELL
- LANDFILL AREA
- BUIDING
- GAS VENT
- SURFACE WATER SAMPLE
- WATER SUPPLY WELL
- SOIL BORING
- WETLANDS

SITE MAP

HOLDEN LANDFILL

RIVER STREET

HOLDEN, MASSACHUSETTS

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95-07-0013	B. CARTER	10/26/95

FILE NAME: HOLDENF2.DWG

FIGURE 2

Currently, this borrow pit is drained by a pipe under River Street to the wetlands east of the property, to retard local groundwater recharge from the borrow pit. A maintenance building/storage shed is located near the main entrance off River Street. Near the maintenance building is an on-site supply well. The well is not currently in use and was never used to obtain drinking water [3; 4; 5].

The Quinapoxet River flows within about 1,200 feet of the north side of the landfill. As early as 1978, a groundwater leachate stream was noticed to the north of the landfill. In 1981, this main leachate stream was reportedly foamy, with a whitish color, pronounced odor, and a flow rate of about 10 gallons per minute. In 1983, it was reportedly reddish-brown with a "distinctly unpleasant odor" and a flow rate of about 350 gallons per minute. Smaller leachate breakouts, mostly west of the main leachate stream, have also been reported. The Preliminary Site Assessment reported that some of the smaller leachate breakouts formed several small streams that stained sediments a yellow-orange color. During the 1995 on-site reconnaissance, START personnel observed that the main leachate stream was clear, but sediments had been stained a rust color [6, pp. 3-1, 3-2; 7, pp. 1-2, 1-3].

From its confluence with the main leachate stream, the Quinapoxet River flows east about 1 mile into the Wachusett Reservoir, which supplies water to about 2.5 million people living in 42 communities near Boston [8].

Thirty-one monitoring wells have been installed during investigations of the landfill. In addition, 15 gas vents are located on the landfill.

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

Prior to its use for waste disposal, the property was used in a sand and gravel operation. From 1955 to 1970, the property was town-owned but privately-operated, as an open-face burning dump. From 1970 until about 1991, the facility was a town-owned and town-operated municipal landfill, and operated using a cut and fill landfilling technique. Some refuse was reportedly disposed of in the pond located immediately west of the landfill [6, pp. 2-3, 3-2; 7, p. 1-3; 3, p. 2]. During normal operations the landfill received about 200 tons of solid waste per week [14, p. 1-1]. The landfill currently has a maintained cap and is undergoing post-closure monitoring of air, groundwater, and surface water, which MA DEP is overseeing. Holden expects to compile the monitoring results in a Comprehensive Site Assessment report to be completed in 1996. Currently, the southwest corner of the property is used for composting yard waste collected by the town [5; 24].

The types and quantities of waste disposed of at the Holden Dump are not well characterized. The landfill was developed to receive mixed municipal refuse. However, some industrial waste was reportedly disposed of in the landfill. Industrial waste disposed of at the Holden Dump reportedly included waste from Electronics Controls Corporation, a manufacturer of printed circuit boards; sludge and other wastes from Reed Rolled Thread & Die Company, a tool and machine die manufacturer; sludge from Presment-GKN Power Met. Inc., a screw manufacturing facility; wastes from Reid Plastics Corporation, a plastic products manufacturer; and paper products and empty waste containers from unspecified companies [6, p. 3-1].

On 20 February 1980, an EPA environmental monitor on Interstate highway I-190 in Holden observed leachate entering the Quinapoxet River and informed EPA Enforcement Division of a possible violation of the Clean Water Act. In the following months, EPA collected a series of surface water samples and analyzed them for purgeable organics. In March 1980, EPA collected a surface water sample from the confluence of the leachate stream and the Quinapoxet River that contained 15 volatile organic compounds (VOCs), including greater than 600 parts per billion (ppb) 1,1,1-trichloroethane [6, pp. 2-3, 3-1, 3-3 to 3-6]. In May 1980, EPA collected samples from the on-site pond, the Wachusett Reservoir, and the Quinapoxet River upstream of the leachate streams. Five VOCs were detected the sample collected from the Quinapoxet River at the leachate breakout; no VOCs were detected in any of the other samples [6 pp. 2-3, 3-1, 3-3 to 3-6].

Also during May 1980, Ecology and Environment, Inc., completed an Identification and Preliminary Assessment of Holden Dump for EPA [6, Appendix A].

During November 1980, the Massachusetts Department of Environmental Quality Engineering (MA DEQE) installed six overburden monitoring wells at the Holden Dump to investigate whether the landfill was the source of the leachate and EPA constructed two leachate control structures (the type of structures is unspecified) [6, pp. 2-3, 2-5, 3-3, 3-4, 3-5, 3-6; 7, Appendix D; 9].

During January 1981, a sample was collected from the main leachate stream and each of the six on-site monitoring wells. The samples were analyzed by EPA for purgeable organics. The sample from the leachate stream contained eight VOCs, the samples from the well contained a total of nine VOCs [6, p. 2-5; 7, Appendix D].

In April 1981, EPA concluded that available information supported the conclusion that groundwater and leachate flow from the landfill toward the Quinapoxet River [6, p. 2-6].

On 1 May 1981, MA DEQE notified Holden that, as a result of the leachate contamination generated by the landfill, the town was in violation of drinking water regulations and regulations regarding the disposal of solid waste by sanitary landfills. Also in May 1981, leachate at the breakout was sampled and analyzed for metals and VOCs. Seven metals and five VOCs were detected in the samples [6, p. 2-5, 3-2, 3-7, 3-8, 3-9; 7, Appendix D].

In July 1981, EPA collected nine surface water samples from the on-site pond, the Quinapoxet River (upstream and downstream of the leachate streams), the main leachate stream, and other leachate streams. All samples were analyzed for purgeable organics and most were analyzed for metals. Seven VOCs and four metals were detected in samples collected from the main leachate stream. One VOC was detected in samples collected from the other leachate streams. No VOCs were detected in the samples collected from the on-site pond or the Quinapoxet River. Arsenic and manganese were detected significantly above background in a sample collected from the confluence of the Quinapoxet River and the main leachate stream. Zinc was detected significantly above background in a downstream sample from the Quinapoxet River [6, p. 3-5, Appendix B].

In August 1981, Holden proposed a voluntary compliance plan to MA DEQE. Under the compliance plan, Holden agreed to conduct a topographic survey, design surface flow diversions for the completed face of the landfill, and place impervious soil cover on the completed portions of the landfill to prevent rainwater infiltration [6, pp. 2-4, 3-2].

In November 1981, groundwater and surface water samples were collected by Ecology and Environment, Inc. All samples were analyzed for purgeable organics and "most" were analyzed for metals. Eight VOCs and six metals were detected in groundwater samples. Surface water samples were collected from the Quinapoxet River, the Wachusett Reservoir, the main leachate stream, and the other leachate streams. No VOCs were detected in the samples collected from the Quinapoxet River. Manganese was detected at an elevated concentration in a samples collected from the confluence of the main leachate stream and the Quinapoxet River. No metals were detected significantly above background in downstream samples collected from the Quinapoxet River. Less than 1 ppb of toluene was detected in the sample collected from the Wachusett Reservoir. Seven metals were detected in a sample collected from the main leachate stream. Six VOCs were detected in samples collected from the leachate streams west of the main leachate stream [6, 3-5, 3-6, 3-7, 3-9, 3-10].

In December 1981, Ecology and Environment, Inc., completed a Preliminary Site Assessment of Holden Dump for EPA under the Field Investigation Team (FIT) contract. This report compiled existing information about the site [6].

In May 1982, Ecology and Environment, Inc., completed an SI form for EPA that summarized the results of previous investigations [4].

In September 1982, the MDC notified Holden that the Holden Dump had been extended onto MDC's property. Holden subsequently scheduled the transfer of about 60,000 cubic yards of waste from the MDC property to the Holden Dump property [7, 1-3, 1-4].

Also on 14 and 22 September 1982, MA DEQE collected groundwater samples from on-site test wells and the on-site supply well, and surface water samples from the leachate stream and three points along the Quinapoxet River; upstream, at its confluence with the leachate stream and downstream. All samples were analyzed for purgeable organics. Eight VOCs were detected in the groundwater samples. Seven VOCs were detected in the leachate stream. No VOCs were detected in the Quinapoxet River or the supply well [10]. Analytical results are summarized in the Groundwater section of this report, and complete analytical results are included in Attachment A.

During March and April 1983, MA DEQE collected three surface water samples from the Quinapoxet River downstream of the leachate stream. The samples were analyzed for purgeable organic compounds, none were detected [11]. Analytical results are summarized in the Groundwater section of this report, and complete analytical results are included in Attachment B.

In August 1983, NUS Corporation/Field Investigation Team (NUS/FIT) completed a hydrogeologic study of the Holden Dump for EPA. During the study, NUS/FIT completed the following tasks.

- Installed 18 observation wells (in 14 locations).
- Installed two surface water gages.
- Measured water levels within new and existing wells.
- Collected groundwater samples from new and existing wells.
- Interpreted the newly acquired and existing hydrologic, geologic, and chemical data.

NUS/FIT conducted two rounds of groundwater and surface water sampling during March and June 1983. Samples collected during both rounds underwent VOC analysis and total metal analysis. Samples collected in March also underwent Base/Neutral and Acid analysis (BNAs). No BNAs were detected and, as a result, that analysis was not performed on samples collected in June. Groundwater samples indicated that concentrations of organic and inorganic compounds were highest in the area north of the landfill. One exception to this pattern was the elevated concentrations of several metals detected in a sample collected from a well located south of the on-site pond. NUS/FIT postulated that the metals in groundwater south of the landfill were attributable to the former burning dump. Surface water samples were collected from the Quinapoxet River, the on-site pond, an unnamed stream flowing parallel to River Street, the leachate stream, and a drainage ditch on the east side of I-190. The only surface water sample in which any organic compounds or elevated concentrations of metals were detected was the one collected from the leachate stream, which contained several VOCs and elevated concentrations of several metals [7, pp. 1-1, 1-2, 3-3, 3-4, 5-1 to 5-4, and Figures 12, 13]. Analytical results are summarized in Groundwater section; validated data are included in Attachment I.

On 12 June 1984, MA DEQE issued an order to Holden demanding that an engineering firm compile a formal closure report, which Holden was to submit to MA DEQE for approval, the landfill cease operation by 1 August 1986, and proper closure of the entire landfill would commence immediately upon closure of the landfill [12].

On 30 April 1986, MA DEQE collected surface water samples from the Quinapoxet River and the leachate stream (see Attachment C). Four VOCs were detected in the sample collected from the leachate stream. No VOCs were detected in samples from the Quinapoxet River [13].

In September 1986, SEA Consultants Inc. (SEA) completed a *Hydrogeologic Investigation and Design of Closure* report on the Holden Dump for Holden. SEA installed monitoring wells, measured hydraulic conductivity, and determined the specifications for the grading and capping of the landfill. The study concluded that solid waste and groundwater at its seasonal high are closest, less than 4 feet apart, along the landfill's eastern perimeter, that wetlands east of the landfill and the pond west of the landfill both serve to recharge the groundwater beneath the landfill, and that runoff from most of the landfill drains into the borrow pit next to River Street [14, pp. 2-5, 2-7, 2-8, 2-13 Figure 2-3].

In October 1986, Holden and MA DEQE signed a Consent Order. This Consent Order was negotiated after Holden failed to meet the deadlines in the 1984 Order for closure of the landfill, and after inspections in August and October 1986 uncovered further violations of the 1984 Order. In the new Consent Order, Holden agreed to complete capping the landfill by 30 October 1987 [15].

In February 1987, MA DEQE assessed a civil administrative penalty in the amount of $3,475 for violations of the October 1986 Consent Order noticed during a December 1986 inspection. Violations identified at the landfill included open drums of waste oil, windblown litter not being properly controlled, refuse not being covered daily, and the stockpiled cover material was not of a sufficiently low permeability to prevent rainwater infiltration. Also during February 1987, Holden submitted a Post Closure Monitoring Plan for the landfill to MA DEQE [16; 17].

In September 1987, MA DEQE collected two surface water samples from the leachate stream (see Attachment D). The samples were analyzed for purgeable organic compounds and contained a total of 10 VOCs [18].

In March 1987, Holden negotiated with MA DEQE to revise the closure schedule provided in the 1986 Consent Order, extending the deadline for completing closure until 1 June 1988 [17].

During October 1988, Holden submitted a second Post Closure Monitoring Plan to MA DEQE [19].

On 10 December 1991, MA DEP inspected the Holden Dump and determined that capping construction had been carried out in accordance with the approved plans and regulations [17].

On 15 October 1992, MDC collected a sediment sample from the Quinapoxet River at its confluence with the main leachate stream. The sample was analyzed for metals and contained an elevated concentration of arsenic [20]. Analytical results are summarized in the groundwater section of this report and included in Attachment E.

On 14 May 1993, MDC collected three sediment samples from the Quinapoxet River. The samples at the river's confluence with the leachate stream and downstream contained significantly elevated concentrations of arsenic. The sample collected at the confluence also contained significantly elevated concentrations of barium and manganese [20]. Analytical results are summarized in the Groundwater section of this report and included in Attachment E.

In June 1993, MA DEP and Holden entered into a Final Decision and Consent Agreement. Under this agreement, which superseded the 1986 Consent Order, Holden committed to begin implementation of the Post Closure Monitoring Plan, and implement the Hydrogeological Investigation (including an Initial Site Assessment and Comprehensive Site Assessment) of the landfill to address the leachate and any other contamination issues [17].

During 1994 and 1995, Holden personnel collected quarterly groundwater, surface water, and air samples. Vinyl chloride, methane, and hydrogen sulfide were detected in air samples collected from within vents located on the landfill. Vinyl chloride and several metals were detected in both groundwater and leachate samples [21; 22; 23]. The analytical results are

summarized in the Groundwater, Surface Water, and Air pathway sections of this report and are included in Attachments F, G, and H.

On September 1995, START personnel and representatives of Holden, MA DEP, and MDC Water Quality Laboratory conducted an on-site reconnaissance of the property as part of the SIP. Based on the availability of third party analytical results for groundwater and surface water, START did not collect samples as part of the SIP [24].

Table 1 presents identified structures or areas on the Holden Dump property that are documented or potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

Table 1

Source Evaluation for Holden Dump

Source Area	Containment Factors	Spatial Location
Landfill	The landfill has an engineered, maintained cap but no leachate collection system or engineered liner.	Extends over the most of the property.

Table 2 presents the waste quantity disposed of in the landfill.

Table 2

Hazardous Waste Quantity for Holden Dump

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Municipal and Industrial Waste	15 acres	1995 to 1991	1995 to present	Landfill

[1; 3; 6]

No sites listed on the Comprehensive Environmental Response, Compensation and Liability Information System or Resource Conservation and Recovery Information System databases are located within 1 mile of Holden Dump [2; 34; 35].

GROUNDWATER PATHWAY

The Holden Dump is situated in a glacial outwash terrace that is bordered by the Quinapoxet River to the north, west, and south. The glacial outwash terrace is a stratified formation of fine sand and silt underlying increasingly coarser sand. The east side of the property is bordered by a glacial till upland area. Wetlands are located between the upland area and the landfill. Cross

sections compiled from boring logs show that the approximate lower boundary of the permeable formation slopes downward in a northwesterly direction toward the Quinapoxet River. Auger refusal, interpreted as the top of glacial till, was encountered about 50 feet beneath the top of the water table at the property and is about 50 feet higher than the Quinapoxet River on the north side of the property. The depth below ground surface that refusal was encountered varied significantly as the topography is highly variable [14, pp. 2-1, 2-4, 2-8]. The upper layers of till encountered were predominantly sandy, highly plastic tills with low permeability. The terrace underneath the landfill is composed of stratified glacial sediments, primarily fine to coarse sand with layers of fine sand and silt north near the Quinapoxet River. NUS postulated that the landfill may have been in direct contact with groundwater.

Bedrock was encountered in one soil boring (HDOW-7) at about 70 feet below ground surface (bgs) [7, pp. 3-1, 4-2, 4-3, 4-5, and Figure 6]. Generally, the bedrock in the area of the landfill is from the Merrimack Belt, which consists of lower Devonian sediments cut by Devonian diorite, tonalite, and granites, and by the Silurian-Ordovician Newburyport complex. More specifically, the bedrock in the vicinity of the landfill is light-gray to white, medium-grained, weakly foliated muscovite-biotite granite. No bedrock formation mapped within 4-radial miles of the property exhibits karst characteristics [36].

Surface water runoff from the property drains to either the pond, wetlands east of the property, or borrow pit (which currently drains to the wetlands). A clear downward vertical groundwater gradient was measured between monitoring wells located in the wetland east of the landfill, indicating that the wetland is a significant groundwater recharge zone. The vertical component measured near the on-site pond was negligible even though the pond's surface is 9 feet higher than the seasonal high groundwater level. SEA concluded that a relatively impermeable layer of silt or organic material had accumulated beneath the pond which prevents groundwater recharge. Groundwater has been encountered within 5 feet of the ground surface. SEA determined solid waste and groundwater (at its seasonal high) are closest, less than 4 feet apart, along the landfill's eastern perimeter. SEA recommended that the borrow pit be equipped with an impermeable liner and an outlet to minimize groundwater recharge [14, pp. 2-5, 2-7, 2-8, 2-13 Figure 2-3]. The mean annual precipitation in Holden in about 48 inches [40].

An estimated 20,582 people obtain drinking water from wells within 4 miles of the property. The nearest public well is approximately 1.1 miles east of the property. Holden, Sterling, and West Boylston each are served by blended drinking water supply systems that obtain part or all of their water from groundwater wells located within 4 miles of Holden Dump. The Holden Water District (HDW) system serves 13,500 people; the Sterling Water Department (SWD) system provides water to 4,700 people; and the West Boylston Water District (WBWD) system serves 6,200 people. Three HWD groundwater wells are within 4 miles of Holden Dump. No HWD intake provides 40% or more of the system's capacity, so the population is apportioned equally among the system's four groundwater wells and one surface water intake. One of SWD's 4 groundwater wells, GPW No. 2, is within 4 miles of the landfill. GPW No. 2 is designated as an emergency well, but was used during the summer of 1995 and is apportioned one-quarter of the population served by SWD. The population served by WBWD is apportioned according to the relative contribution of each source, all three of which are within 4 miles of the landfill. The nearest private well is located about 0.3 miles southwest of the property. Table 3 summarizes the public drinking water supply wells within 4 miles of Holden Dump.

Table 3

Public Groundwater Supply Sources Within 4-Radial Miles of Holden Dump

Distance/ Direction from Site	Source Name	Location of Source	Estimated Population Served	Source Type
1.1 mi. East	WBWD, GPW No. 1	West Boylston	1,550	UN
1.5 mi. West	HWD, Quinapoxet Well	Holden	2,700	GP
1.7 mi. West	HWD, Mill Street Wells	Holden	2,700	TWF
1.8 mi. Southeast	WBWD, GPW No. 4	West Boylston	3,100	UN
1.9 mi. Northwest	HWD, Mason Road Wells	Holden	2,700	TWF
2.9 mi. Southeast	WBWD, GPW No. 5	West Boylston	1,550	UN
3.1 mi. West	HWD, Spring Street Well	Holden	2,700	GP
3.8 mi. Northeast	SWD, GPW No. 2	Sterling	1,175	UN

Notes: GP-Gravel Packed; TWF-Tubular Well Field; UN-Unknown
[25; 26; 27]

Private groundwater supplies located within 4-radial miles of the property were estimated using equal distribution calculations of U.S. Census CENTRACTS data identifying population, households, and private water wells for "Block Groups" which lie within or partially within individual radial distance rings measured from the Holden Dump property [28]. The total population which relies on groundwater within 4-radial miles of the property is estimated at 20,582 persons and is summarized in Table 4.

Table 4

Estimated Drinking Water Populations Served by Groundwater Sources Within 4-Radial Miles of Holden Dump

Radial Distance From Holden Dump (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
0.0 to 0.25	14	0	14
0.25 to 0.50	49	0	49
0.50 to 1.00	128	0	128
1.00 to 2.00	419	12,750	13,169
2.00 to 3.00	686	1,550	2,236
3.00 to 4.00	1,111	3,875	4,986
TOTAL	2,407	18,175	20,582

[25; 26; 27; 28]

Groundwater samples have been collected in the vicinity of the Holden Dump from 1981 to the present. Information regarding specific chemical analysis and quality control procedures used for sampling events prior to 1982 was not contained in the available information. Analytical results for groundwater samples are summarized in Table 5.

During November 1980, MA DEQE installed six overburden monitoring wells (T/W-1 to T/W-6) at the Holden Dump to investigate whether the landfill was the source of the leachate. These wells were reportedly not constructed properly or secured adequately. EPA concluded that available information supported the conclusion that groundwater and leachate flow from the landfill toward the Quinapoxet River [6, p. 2-3, 2-5, 3-2 to 3-9; 7, Appendix D; 9].

During January 1981, monitoring wells T/W-1 to T/W-6 were sampled and analyzed by EPA for purgeable organics and contained nine VOCs [7, Appendix D].

In July 1981, groundwater samples were collected by EPA from wells T/W-2 through T/W-6, all samples were analyzed for purgeable organics and the sample collected from T/W-4 was analyzed for metals. Ten VOCs and seven metals were detected in groundwater samples [6, p. 3-8, 3-9; 7, Appendix D].

In November 1981, groundwater samples were collected by EPA from wells T/W-2 and T/W-5 and analyzed for purgeable organics and metals. Seven VOCs and seven metals were detected [6, p. 3-9, 3-10; 7, Appendix D].

Table 5 presents the maximum concentrations of each analyte that was detected in groundwater at Holden Dump significantly above background concentrations. Wells HDOW-1 and HDOW-2 were selected as the reference sample locations based on their upgradient location with respect to the landfill, and their consistently low concentrations of contaminants. The higher of the concentrations in these wells is used as a reference value. Maximum concentrations are presented for two time periods, before 1991 and after 1991, to show how contaminant concentrations have changed over time and, specifically, since the landfill was capped in 1991.

Table 5

Summary of Analytical Results
Groundwater Sample Analysis for Holden Dump

Sample Location/Date	Compound/ Element	Sample Concentration	Reference Concentration	Comments
Results of Samples Collected Prior to 1990				
VOCS				
HDOW-9B 6/83	Benzene	68 ppb	5 ppb	14 × Ref
T/W-6 6/83	Carbon tetrachloride	8 ppb	5 U ppb	1.6 × SQL
HDOW-9C 6/83	1,1,1-trichloroethane	1,140 ppb	5 U ppb	228 × SQL
HDOW-9C 6/83	1,1-dichloroethane	270 ppb	5 U ppb	54 × SQL
HDOW-9C 6/83	1,1,2,2-tetrachloroethane	10 ppb	10 U ppb	1.0 × SQL
T/W-1 1/81	1,1-dichloroethene	11 ppb	5 U ppb	2.2 × SQL
T/W-6 1/81	Trans-1,2-dichloroethene	108 ppb	5 U ppb	22 × SQL
T/W-5 3/83	Ethylbenzene	35 ppb	5 U ppb	6.0 × SQL
HDOW-9C 6/83	Methylene chloride	866 ppb	ND B	
HDOW-13 6/83	Fluorotrichloro-methane	10 ppb	10 UN ppb	1.0 × SQL
HDOW-9B 6/83	Tetrachloroethane	7 ppb	5 U ppb	1.4 × SQL
HDOW-9B 6/83	Toluene	232 ppb	5 U ppb	46 × SQL
HDOW-9B 6/83	Trichloroethene	26 ppb	5 U ppb	5.2 × SQL
T/W-2 6/83	Vinyl chloride	262 ppb	10 U ppb	26 × SQL
HDOW-9B 6/83	Acetone	3,890 ppb	5 J ppb	778 × Ref
HDOW-9B 6/83	2-butanone	7,600 ppb	5 U ppb	1,520 × SQL

Table 5 (Continued)

Summary of Analytical Results
Groundwater Sample Analysis for Holden Dump

Sample Location/Date	Compound/ Element	Sample Concentration	Reference Concentration	Comments
HDOW-9B 6/83	2-hexanone	43 ppb	5 U ppb	8.6 × SQL
HDOW-9B 6/83	2-methyl-2-pentanone	483 ppb	5 U ppb	97 × SQL
T/W-5 7/81	Dioxane	138 ppb	NA	
HDOW-9B 6/83	Styrene	5 ppb	5 U ppb	1.0 × SQL
T/W-5 9/82	Xylene	110 ppb	5 J ppb	22 × SQL
INORGANICS				
HDOW-8 6/83	Aluminum	367,000 ppb	49,200 ppb	7.4 × Ref
HDOW-8 6/83	Chromium	775 ppb	78 ppb	9.9 × Ref
HDOW-8 6/83	Barium	2,650 ppb	350 ppb	7.6 × Ref
HDOW-8 6/83	Beryllium	41 ppb	10 ppb	4.1 × Ref
HDOW-5 6/83	Cobalt	305 ppb	67 ppb	4.6 × Ref
HDOW-8 6/83	Copper	829 ppb	146 ppb	5.7 × Ref
HDOW-8 6/83	Nickel	646 ppb	77 ppb	8.4 × Ref
T/W-6 3/83	Manganese	12,000 ppb	3,690 ppb	3.3 × Ref
T/W-1 3/83	Zinc	41,000 ppb	325 ppb	124 × Ref
T/W-5 3/83	Boron	1,000 ppb	102 ppb	9.8 × Ref
HDOW-5 6/83	Vanadium	581 ppb	200 U ppb	2.9 × SDL
T/W-6 3/83	Arsenic	4,000 ppb	110 ppb	36 × Ref
HDOW-3 6/83	Antimony	32 ppb	20 U ppb	1.6 × SDL
T/W-3 3/83	Selenium	2.6 ppb	2 U ppb	1.3 × SDL
T/W-1 3/83	Thallium	23 ppb	10 U ppb	2.3 × SDL
HDOW-4 6/83	Mercury	1.3 ppb	0.2 U ppb	6.5 × SDL
HDOW-8 6/83	Lead	520 ppb	84 ppb	6.2 × Ref
HDOW-12 6/83	Iron	670,000 ppb	59,400 ppb	7.4 × Ref
Results of Samples Collected After 1990				
VOCS				
HDOW-13 12/94	Benzene	1.3 ppb	1[1] U ppb	1.3 × SQL

Table 5 (Concluded)

Summary of Analytical Results
Groundwater Sample Analysis for Holden Dump

Sample Location/Date	Compound/ Element	Sample Concentration	Reference Concentration	Comments
HDOW-13 12/94	Vinyl chloride	2.6 ppb	1[1] U ppb	2.6 × SQL
INORGANICS				
HDOW-13 6/95	Manganese	9,130 ppb	700 ppb	13 × Ref
HDOW-9C 6/95	Iron	208,000 ppb	1,050 ppb	198 × Ref
HDOW-8 6/95	Arsenic	1,210 ppb	12 ppb	100 × Ref
HDOW-5 6/95	Lead	239 ppb	0.5 U ppb	478 × SDL
HDOW-8 6/95	Copper	339 ppb	6 ppb	57 × Ref
HDOW-13 12/94	Zinc	1,000 ppb	11 ppb	91 × Ref
HDOW-9C 6/95	Cadmium	34 ppb	6 U ppb	5.7 × SDL
HDOW-8 6/95	Chromium	254 ppb	6 U ppb	42 × SDL
HDOW-13 12/94	Barium	2,100 ppb	157 ppb	13 × Ref

1 The analytical results for the 1994 samples were not obtained by START, however based on the results of samples collected from other locations the detection limits for benzene and vinyl chloride were 1 ppb.

SQL = Sample Quantitation Limit.
SDL = Sample Detection Limit.
Ref = Reference value.
ND = Not detected; no detection limit included in available information.
NA = Not analyzed for substance.
J = Estimated value
U = Not detected above SDL.
K = Unspecified qualifier.
B = Analyte detected in blank.
UN = Tentatively identified compound.
ppb = Parts per billion.
VOCs = Volatile organic compounds.

[7, appendix D; 10; 21; 22]

During September 1982, MA DEQE collected groundwater samples from wells T/W-2 through T/W-6 and the on-site supply well. All samples were analyzed for purgeable organics using EPA Method 624, no detection limits were reported. Quality control consisted of running laboratory blanks, duplicates, and spiking each run with a three compound internal standard (no quality control results were provided). Eight VOCs were detected in samples collected from the monitoring wells; no VOCs were detected in the sample from the on-site supply well [10].

In 1983, NUS/FIT supervised the installation of 18 overburden monitoring wells (at locations HDOW-1 to HDOW-14) around the perimeter of the landfill for EPA. Each soil boring advanced by NUS/FIT extended to either glacial till or bedrock [7, pp. 3-1]. NUS/FIT conducted two rounds of groundwater sampling, one during March and the other during June. The samples were analyzed under EPA's Contract Laboratory Program (CLP). Samples collected during both rounds underwent volatile organic analysis and total metal analysis (the samples were unfiltered). Samples collected in March also underwent BNA analysis. No BNAs were detected; as a result, BNA analysis was not performed on samples collected in June. Quality control included the laboratory quality control procedures specified under CLP and collection of two pairs of duplicate samples. VOCs detected included up to 68 ppb benzene and 1,140 ppb 1,1,1-trichloroethane. Organic contaminants in the groundwater were concentrated in an area north of the landfill. Metals detected included arsenic at up to 760 ppb and at up to 520 ppb lead. Metals distribution in groundwater roughly coincided with the organic compound distribution. Elevated concentrations of some metals were also detected in HDOW-5, which is located south of the on-site pond. NUS/FIT postulated that the metals in groundwater south of the landfill were attributable to the former burning dump [7, pp. 1-1, 1-2, 3-3, 3-4, 5-1 to 5-4, and Figures 12, 13].

In September 1986, SEA completed a *Hydrogeologic Investigation and Design of Closure* report on the Holden Dump for Holden. SEA consultants installed eight soil borings (SEA-1 to SEA-8) seven of which were completed as monitoring wells; four wells within the refuse and three wells on the perimeter of the landfill. At locations near the wetlands and the pond (SEA-1 and SEA-6, respectively) multiple wells, screened at two levels, were installed so that SEA could determine the vertical component of groundwater flow. Well SEA-6 and -6-A were screened at about 15 and 40 feet bgs, respectively. Well SEA-1 and -1-A were screened at about 10 and 30 feet bgs, respectively [14, pp. 2-5, 2-7, 2-8, 2-13 Figure 2-3].

During 1994 and 1995, Holden collected groundwater from 12 monitoring wells. Samples were collected quarterly and analyzed by American Environmental Laboratories, Inc. for VOCs using EPA Method 624 or 8240 and for inorganics using EPA Method Nos. 200.7, 239.2, 245.1, 206.2, and 270.2. During 1994, vinyl chloride, benzene, and several metals (including arsenic, chromium, and lead) were detected groundwater samples. During 1995, no organics were detected in groundwater samples (although vinyl chloride did not appear on the reported analyte list) [21; 22].

Monitoring wells HDOW-1 and HDOW-2 were the most upgradient wells sampled prior to 1991. The highest values for samples collected by NUS/FIT from monitoring wells HDOW-1 and HDOW-2 in 1983 were used as background all samples collected prior to 1990. For each analyte the higher concentration between the two wells was used as the reference concentration.

HDOW-3 was the most upgradient well sampled after 1991. The sample collected from HDOW-3 in June 1995 by Holden was assumed to represent background conditions for samples collected after 1991 [7., Figure 10].

Sample results indicate a significant decease in contaminant concentrations in groundwater at the landfill since the landfill was capped. Sampling events indicate that contaminants are concentrated north (downgradient) of the landfill, with the exception that metals have been

consistently detected above background in well HDOW-5. By December 1994, organic contaminants were only detected in samples collected from a well near the leachate breakout, and no organic contaminants were detected in samples collected June 1995 (though the detection limits were higher than previous rounds and vinyl chloride was not on the analyte list) [21; 22].

SURFACE WATER PATHWAY

The surface water migration pathway begins where a leachate stream emerges on the north face of the landfill. The leachate break-out point is the probable point of entry (PPE) to surface water because this leachate stream is apparently perennial [24]. The leachate stream flows down a steep slope and into the Quinapoxet River about 300 feet upstream of the Interstate 190 bridge. During the START on-site reconnaissance, the sediments of the Quinapoxet River at and downstream of the confluence with the leachate stream were stained a rust color. From this confluence, the Quinapoxet River flows east about 1 mile into the Wachusett Reservoir. Water flows about 6.6 miles through the reservoir to the easternmost section of the reservoir near Clinton, Massachusetts. Most water exiting the reservoir is diverted by the MDC to provide drinking water for communities in the Boston area. A relatively small portion of the water exiting the reservoir feeds the Nashua River. The 15-mile downstream point is located on the Nashua River about 1.2 miles downstream of the Seven Bridge Road/Main Street Bridge in Lancaster, Massachusetts [2]. Table 6 summarizes surface water bodies located downstream of the property.

Table 6

Surface Water Bodies Along the 15-mile Downstream Pathway From Holden Dump

Surface Water Body	Descriptor[a]	Length of Reach	Flow Characteristics (cfs)[b]	Length of Wetlands
Leachate Stream	Minimal stream	0 to 400 feet	0.8	0 mile
Quinapoxet River	Small to moderate stream	400 feet to 1.0 mile	98[c]	0.25 mile
Wachusett Reservoir	Moderate to large stream	1.0 to 7.6 miles	~500	0.45 mile
Nashua River	Moderate to large stream	7.6 to 15 miles	190[d]	0.9 mile

[a] Minimal stream < 10 cfs. Small to moderate stream 10-100 cfs. Moderate to large stream > 100-1,000 cfs. Large stream to river > 1,000-10,000 cfs. Large river > 10,000-100,000 cfs. Very large river > 100,000 cfs. Coastal tidal waters (flow not applicable). Shallow ocean zone or Great Lake (flow not applicable). Moderate depth ocean zone or Great Lake (flow not applicable). Deep ocean zone or Great Lake (flow not applicable). Three-mile mixing zone in quiet flowing river 10 cfs or greater.

[b] Cubic feet per second.

[c] NUS/FIT measured the flow rate of the Quinapoxet River to be 125 cfs. Because mean annual flow is expected to less than the flow measured in June, a mean annual flow rate of 98 cfs is used.

[d] The reported flow rate is for a gauging station in Clinton. However, the dilution for contaminants in the Nashua River that originated at the Holden Dump must be at least as great as in the Wachusett Reservoir.

[29; 30; 31; 32, p. 37]

The Wachusett Reservoir provides drinking water to about 2.5 million people in the greater Boston area and to about 12,500 people in Clinton. The intake is located at the east end of the reservoir about 7.6 miles downstream of the PPE [8; 29].

The Quinapoxet River, Wachusett Reservoir, and Nashua River are all recreational fisheries. Habitats for nine State-threatened or endangered species exist along the Quinapoxet River, nine border the Wachusett Reservoir or Nashua River within 15 downstream miles of the property [33]. The Quinapoxet River is assumed to be State designated area for the protection and maintenance of aquatic life under the Clean Water Act. The total length of wetlands frontage along the 15-mile downstream pathway is about 1.6 miles [30; 37; 38; 39].

Tables 7, 8, 9, and 10 summarize surface water or sediment sampling events for the leachate stream, Quinapoxet River, (surface water and sediment) and the on-site pond, respectively. Investigations of Holden Dump were conducted from 1981 to 1995. Information regarding specific chemical analysis and quality control procedures used for sampling events prior to 1982 were not available in the information reviewed for this report. Samples collected from the Quinapoxet River upstream of the leachate streams are used as reference samples for samples collected from the leachate streams, the Quinapoxet River at and downstream from the leachate streams, and the on-site pond. Tables 7, 8, 9, and 10 only display sample results that are significantly above background and had a reference sample collected during the same sampling event.

Table 7

Summary of Analytical Results
Leachate Stream Surface Water Sample Analysis for Holden Dump
Samples Collected July 1981 to Present

Sample Location/Date	Compound/ Element	Maximum Sample Concentration	Reference Concentration	Comments
VOCS				
SP-1 6/83	1,1-dichloroethene	5 ppb	5 U ppb	1 × SQL
LBO 9/82	Methylene chloride	11 ppb	ND	
LBO 9/82	1,2-dichloroethene	3.4 ppb	ND	
SP-1 3/83	Trans-1,2-dichloroethene	24 ppb	5 U ppb	5 × SQL
LBO 9/82	Ethylbenzene	16 ppb	ND	
SP-1 3/83	Methylene chloride	5 ppb	5 U	1 × SQL
SP-1 6/83	Fluorotrichloromethane	10 ppb	10 UN ppb	1 × SQL
SP-1 3/83	Benzene	11 ppb	5 U ppb	2 × SQL
SP-1 6/83	1,1,1-trichloroethane	531 ppb	5 U ppb	106 × SQL
SP-1 6/83	Tetrachloroethane	5 ppb	5 U ppb	1 × SQL
SP-1 3/83	Toluene	31 ppb	5 U ppb	6 × SQL

Table 7 (Continued)

Summary of Analytical Results
Leachate Stream Surface Water Sample Analysis for Holden Dump
Samples Collected from July 1981 to Present

Sample Location/Date	Compound/ Element	Maximum Sample Concentration	Reference Concentration	Comments
SP-1 6/83	Trichloroethene	5 ppb	5 U ppb	1 × SQL
SP-1 3/83	Vinyl chloride	50 ppb	5 U ppb	10 × SQL
No. 2 4/86	Acetone	140 ppb	ND	
SP-1 6/83	4-methyl-2-pentanone	5 ppb	5 U ppb	1 × SQL
SP-1 3/83	o-xylene	21 ppb	5 U ppb	4 × SQL
LBO 9/82	1,1-dichloroethane	460 ppb	ND	
SP-1 6/83	Chloroethane	46 ppb	10 U ppb	5 × SQL
No. 2 4/86	Methyl ethyl ketone	110 ppb	ND	
L04 7/81	Dioxane	220 ppb	ND	
INORGANICS				
SP-2 3/83	Aluminum	390 ppb	200 U ppb	2.0 × SDL
SP-2 3/83	Barium	590 ppb	100 U ppb	5.9 × SDL
SP-2 3/83	Cobalt	220 ppb	50 U ppb	4.4 × SDL
SP-2 3/83	Iron	550,000 ppb	50 U ppb	11,000 × SDL
SP-2 3/83	Boron	1,400 ppb	100 U ppb	14 × SDL
SP-2 3/83	Arsenic	5,600 ppb	10 U ppb	560 × SDL
SP-1 3/83	Selenium	3.2 ppb	2 U ppb	1.6 × SDL
SP-2 3/83	Thallium	28 ppb	10 U ppb	2.8 × SDL
SP-2 3/83	Lead	14 ppb	5 U ppb	2.8 × SDL
SP-1 3/83	Copper	61 ppb	50 U ppb	1.2 × SDL
SP-2 3/83	Zinc	84 ppb	14 ppb	6.0 × Ref
SP-2 3/83	Manganese	13,000 ppb	50 ppb	260 × Ref

Table 7 (Concluded)

Summary of Analytical Results
Leachate Stream Surface Water Sample Analysis for Holden Dump
Samples Collected from July 1981 to Present

Sample Location/Date	Compound/ Element	Maximum Sample Concentration	Reference Concentration	Comments
Results of Samples Collected After 1991				
VOCS				
LS 12/94	Vinyl chloride	1.8 ppb	1 U ppb	2 × SDL
INORGANICS				
LS 6/95	Iron	11,800 ppb	169 ppb	70 × REF
LS 12/94	Manganese	2,200 ppb	30 ppb	73 × REF
LS 6/95	Copper	10 ppb	6 U ppb	1.6 × SDL
LS 6/95	Chromium	29,700 ppb	6 U ppb	4,950 × SDL
LS 12/94	Arsenic	530 ppb	0.2 U ppb	2,650 × SDL
LS 6/95	Zinc	12 ppb	3 U ppb	4.0 × SDL
LS 6/95	Barium	63 ppb	19 ppb	3.3 × Ref

N = Tentatively identified compound.
U = Analyte not detected above specified concentration.
Ref = Reference Value.
LS = Leachate Stream (main stream)
LO4 = Location LO4
LBO = Collected from Leachate breakout point.
ND = Not Detected, detection limit not provided in available data.
ppb = Parts per billion
VOCs = Volatile organic compounds.
SQL = Sample Quantitation Limit.
SDL = Sample Detection Limit.
[7, Appendix D; 6, pp. 3-5, 3-6, Appendix B; 13; 20; 21; 29].

Table 8

Summary of Analytical Results
Quinapoxet River Surface Water Analysis for Holden Dump
Samples Collected Prior to 1991

Sample Location/Date	Compound/ Element	Sample Concentration	Reference Concentration	Comments
VOCS				
No. 4 4/86	Methylene chloride	2 ppb	ND	
No. 4 4/86	Trichloroethene	1 ppb	ND	
INORGANICS				
QR-1 3/83	Iron	190 ppb	ND	
CON 7/81	Manganese	5,200 ppb	60 ppb	87 × Ref
QR-1 3/83	Zinc	35 ppb	ND	
CON 7/81	Arsenic	41 ppb	2 ppb	21 × Ref

Ref = Reference Value.
CON = Collected from the Quinapoxet River at its confluence with the leachate steam.
ND = Not Detected, detection limit not provided in available data.
ppb = Parts per billion
VOCs = Volatile organic compounds.
[7, Appendix D; 6, pp. 3-5, 3-6, Appendix B; 13; 20; 21; 29].

Table 9

Summary of Analytical Results
Quinapoxet River Sediment Sample Analysis for Holden Dump
Samples Collected 14 May 1993

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
INORGANICS				
Breakout No. 2	Arsenic	1,990 ppm	2.97 ppm	670 × Ref
Breakout No. 2	Barium	508 ppm	42.1 ppm	466 × Ref
Breakout No. 2	Manganese	27,300 ppm	348 ppm	78 × Ref
Breakout No. 2	Silver	8.67 ppm	0.7 U ppm	12 × SDL

U = Analyte not detected above specified concentration.
Ref = Reference Value.
SDL = Sample Detection Limit.
ppm = Parts per million.
[7, Appendix D; 6, pp. 3-5, 3-6, Appendix B; 13; 20; 21; 29].

Table 10

Summary of Analytical Results
On-Site Surface Water Sample Analysis for Holden Dump

Sample Location/Date	Compound/ Element	Sample Concentration	Reference Concentration[1]	Comments
INORGANICS				
PND-1 3/83	Copper	58 ppb	50 U ppb	1.2 × SDL
PND-1 3/83	Boron	115 ppb	100 U ppb	1.2 × SDL
PND-2 3/83	Zinc	32,000 ppb	14 ppb	2,286 × Ref
PND-1 3/83	Iron	440 ppb	50 U ppb	8.8 × SDL
PND-2 3/83	Lead	6.5 ppb	5 U ppb	1.3 × SDL

U = Analyte not detected above specified concentration.
Ref = Reference Value.
SDL = Sample Detection Limit.
ppb = Parts per billion.
[7, Appendix D; 6, pp. 3-5, 3-6, Appendix B; 13; 20; 21; 29].

Most of the compounds detected in surface water and sediment samples have also been detected in groundwater samples collected from the Holden Dump property. The only organic compound detected in surface water samples collected after 1991 was vinyl chloride. Vinyl chloride was also one of the only organic compounds detected in groundwater samples collected after 1991. Arsenic has consistently been detected in the leachate stream; sediment samples from the Quinapoxet River in 1993 contained significantly elevated concentrations of arsenic.

In March 1980, EPA collected a surface water samples from the Quinapoxet River at its confluence with the leachate stream. The sample contained 15 VOCs, including greater than 600 ppb 1,1,1-trichloroethane, 100 ppb 1,1-dichloroethane, and 4 ppb benzene. No reference sample was collected [6, pp. 2-3, 3-3, 3-4, 3-5, 3-6].

In May 1980, EPA collected samples from the on-site pond, the Wachusett Reservoir, and the Quinapoxet River upstream of the leachate streams. Five VOCs were detected in the sample collected from the Quinapoxet River; only one concentration was quantified; 1 ppb of 1,1,1-trichloroethane. No VOCs were detected in samples collected from the on-site pond, Wachusett Reservoir, or Quinapoxet River upstream of the leachate streams [6, pp. 2-3, 3-1, 3-3, 3-4, 3-5, 3-6].

In January 1981, EPA collected one sample from the main leachate stream. The sample was analyzed for VOCs and contained eight VOCs including 5 ppb benzene, 330 pp 1,1,1-trichloroethane, 480 ppb 1,1-dichloroethane, 24 ppb 1,1-dichloroethene, 75 ppb trans-1,2-dichloroethene, 2 ppb ethylbenzene, and 115 ppb toluene. No reference sample was collected [7, Appendix D].

In May 1981, EPA collected a sample from the leachate at the breakout and analyzed it for metals, seven of which were detected. No detection limits or analytical methods were specified in the available references [6, pp. 3-7 and 3-9].

In July 1981, EPA collected surface water samples from the on-site pond, the Quinapoxet River (upstream and downstream of the leachate streams), the main leachate stream, and other leachate streams located 200 to 500 feet west of the main leachate stream. All samples were analyzed for purgeable organics and most were analyzed for metals. Seven VOCs and four metals were detected in samples collected from the main leachate stream, including 114 ppb arsenic. One VOC was detected in samples collected from the other leachate streams. No VOCs were detected in the samples collected from the on-site pond or the Quinapoxet River. Arsenic at 41 ppb and manganese at 5,200 ppb were detected significantly above background in a sample collected from the confluence of the Quinapoxet River and the main leachate stream. Zinc was detected at 30 ppb significantly above background, in a downstream sample from the Quinapoxet River [6, p. 3-5, Appendix B].

In November 1981, surface water samples were collected by EPA from the Quinapoxet River, the Wachusett Reservoir, the main leachate stream, and the leachate streams west of the main leachate stream. All samples were analyzed for purgeable organics and most were analyzed for metals. VOCs and seven metals were detected in a sample collected from the main leachate stream. Six VOCs were detected in samples collected from the leachate streams west of the main leachate stream including up to 190 ppb vinyl chloride, 210 ppb 1,1-dichloroethane, and 240 ppb 1,1,1-trichloroethane. No VOCs were detected in the samples collected from the Quinapoxet River. Manganese was detected at 7,100 ppb, at an elevated concentration in a samples collected from the confluence of the main leachate stream and the Quinapoxet River. No metals were detected significantly above background in downstream samples collected from the Quinapoxet River. Less than 1 ppb of toluene was detected in the sample collected from the Wachusett Reservoir. Apparently, there was no surface water reference sample collected during this sampling event [6, pp. 3-5, 3-6, 3-7, 3-9, 3-10, Appendix B].

During September 1982, MA DEQE collected surface water samples from the leachate stream and three points along the Quinapoxet River (upstream, at its confluence with the leachate stream, and downstream). All samples were analyzed for purgeable organics using EPA Method 624; however, no detection limits were reported. Quality control consisted of running laboratory blanks, duplicates, and spiking each run with a three compound internal standard; no quality control results were provided. Seventeen VOCs were detected (only 13 were quantified) in the sample collected from the leachate stream, including 460 ppb 1,1-dichloroethane. No VOCs were detected in samples collected from the Quinapoxet River [10].

During April 1983, MA DEQE collected surface water samples from the Quinapoxet River. The samples were analyzed for purgeable organic compounds using Method 624, no quality control procedures were specified. No VOCs were detected [11].

In 1983, NUS/FIT conducted two rounds of surface water sampling, the first during March and the second during June. Samples were analyzed under EPA's CLP and underwent the quality control required by that program. Samples collected during both rounds underwent analysis for VOCs and total metal (the samples were unfiltered). Samples collected in March also underwent

BNA analysis. No BNA compounds were detected and, as a result, that analysis was not performed on samples collected in June. Surface water samples were collected from the Quinapoxet River (upstream and downstream), the on-site pond, an unnamed stream flowing parallel to River Street, the leachate stream, and a drainage ditch on the east side of I-190. Only the sample collected from the leachate stream, in which several VOCs were detected, contained any organic compounds. The leachate stream contained elevated concentrations of arsenic, iron, and manganese. No metals were detected at elevated concentrations in samples collected from the Quinapoxet River or the on-site pond [7, pp. 1-1, 1-2, 3-3, 3-4, 5-1 to 5-4, and Figures 12, 13].

On 30 April 1986, MA DEQE collected surface water samples from the Quinapoxet River and the leachate stream. The samples were analyzed for VOCs using EPA Method 624. Quality control procedures including analyzing a blank sample. Four VOCs, including benzene at 2 ppb, were detected in the sample collected from the leachate stream. Trichloroethylene at 1 ppb was detected in a sample from the Quinapoxet River [13].

In September 1987, MA DEQE collected two samples from the leachate stream. The samples were analyzed for purgeable organic compounds using Method 8240; no quality control procedures were specified. The samples contained a total of 10 VOCs including benzene, 1,1,1-trichloroethane, and xylenes [18].

On 15 October 1992, MDC collected a sediment sample from the Quinapoxet River at its confluence with the main leachate stream. No information regarding the analytical method or quality control procedures used by MDC was in the information reviewed for this report. The sample was analyzed for metals and contained arsenic at 75.9 ppm [20].

On 14 May 1993, MDC collected three sediment samples from the Quinapoxet River; one sample from soft sediment collected upstream of the leachate stream at the confluence Quinapoxet River and Trout Brook; one sample of "red goo" from the edge of the Quinapoxet River where the leachate stream comes out of bank; and sample of organic/gravel sediment along an island in the middle of the Quinapoxet River downstream of the leachate stream. The samples at the river's confluence with the leachate stream and downstream contained 1,990 mg/kg and 30.6 mg/kg arsenic, respectively. The sample collected at the confluence also contained significantly elevated concentrations of barium and manganese [20].

During 1994 and 1995, Holden collected surface water samples from the on-site pond, up- and downstream in the Quinapoxet River, and the leachate breakout. Samples were collected quarterly and analyzed by American Environmental Laboratories, Inc. Samples were analyzed for VOCs using EPA Method 624 or 8240 and for inorganics using EPA Method Nos. 200.7, 239.2, 245.1, 206.2, and 270.2. The leachate sample collected in June 1995 was also analyzed for SVOCs and pesticides/polychlorinated biphenyls by EPA Methods Nos. 8270 and 8080, respectively; none were detected. Quality control procedures included measuring surrogate recovery. Leachate samples collected in 1994 contained 1.8 ppb vinyl chloride. Surface water samples collected during June 1995 (the most recent sampling results reviewed for this report) did not contain any organic compounds (although vinyl chloride did not appear on the reported analyte list). Leachate samples contained several metals, including arsenic at 530 ppb. Several

metals but no organics were detected in samples from the on-site pond. No compounds were detected in the Quinapoxet River significantly above background [21; 22].

SOIL EXPOSURE PATHWAY

No residences are located on the property. No schools or day-care centers are located within 200 feet of the property. To support composting operations, three people work on the property on Fridays and Saturdays for four consecutive weeks during the spring and the fall each year. No person lives or works within 200 feet of the leachate stream [5; 24]. An estimated 668 people live within 1 mile of the property [28].

No surficial soil samples have been collected on the property. There are no confirmed areas of observed surficial soil contamination on the property. The landfill is currently covered with a maintained, engineered cap. It is possible that the leachate stream has contaminated soils along its path, which are visibly stained. The leachate stream is assumed to flow continuously, however, its flow path appears to vary, potentially exposing contaminated sediments [24].

No terrestrial sensitive environments are located wholly or partially on an area of observed contamination [24; 33].

AIR PATHWAY

The nearest residence is about 0.3 miles west of the property [24, p. 5]. An estimated 25,180 people live within 4 miles of the property [28]. During the on-site reconnaissance, START personnel observed workers on the property supporting the composting operations, which are still active [24, p. 6]. Table 11 summarizes the residential population within 4-radial miles of the property.

Table 11

Estimated Population Within 4-Radial Miles of Holden Dump

Radial Distance From Holden Dump (miles)	Estimated Population
0.00 < 0.25	0[1]
0.25 < 0.50	203
0.50 < 1.00	465
1.00 < 2.00	4,506
2.00 < 3.00	9,913
3.00 < 4.00	10,093
TOTAL	25,180

1 Does not include the three people who work part-time on site.

[24; 28]

Roughly 1,250 acres of wetlands are located within 4 miles of the property [30; 37; 38; and 39]. There are two State-designated threatened or endangered species located about 3.3 miles from the property [33]. Table 12 summarizes the sensitive environments located within 4-radial miles of the property.

Table 12

Sensitive Environments Located Within 4-Radial Miles of Holden Dump

Radial Distance from Holden Dump (miles)	Sensitive Environment/Species (status)
0.00 < 0.25	Wetland (9 acres)
0.25 < 0.50	Wetland (12 acres) Clean Water Act
0.50 < 1.00	Wetland (110 acres)
1.00 < 2.00	Wetland (260 acres)
2.00 < 3.00	Wetland (350 acres)
3.00 < 4.00	Wetland (510 acres) 2 State-threatened or endangered Species

[30; 33; 37; 38; 39]

Holden has been responsible for periodically measuring the concentrations of vinyl chloride, hydrogen sulfide, and methane in air within 15 gas vents, which are located on the property. F. David Ploss Associates, Inc. used two monitors to measure the concentration of the three target compounds. A Foxboro Miran IBX Ambient Air Analyzer was used to measure methane and vinyl chloride. A Bacharach Sentinel 44 Personal Multigas monitor with sample draw capability was used to measure the concentration of hydrogen sulfide. The monitoring equipment probe was inserted into each gas vent for about 2 minutes for each compound and the highest concentration of each compound was recorded. Quality control procedures consisted of instrument calibration prior to measurement. The maximum concentrations detected are as follow: vinyl chloride at 42 ppm; hydrogen sulfide at 8 ppm; and 90,275 ppm methane. No representative background air samples have been collected. Therefore, gas vent No. 11 was chosen to represent background concentration during each round because samples collected from that vent had consistently lower concentrations than samples collected from other vents [23, p. 1, Figures 2, 3, and 4, and Appendix A]. Table 9 summarizes the maximum concentrations of contaminants detected in air samples collected from gas vents at the landfill. Complete analytical results are included in Attachment G.

No ambient air sampling has been performed on the property. During the on-site reconnaissance, START personnel periodically monitored ambient air using a flame ionization detector which displayed readings up to 1,000 units above background [24].

SUMMARY

The Holden Dump property was used for waste disposal, first as a burning dump and then as a landfill from about 1955 to 1991. Municipal waste and possibly some industrial waste were disposed of on the property. The landfill has been capped to retard rainwater infiltration and a retention pond near the landfill is drained by a pipe under River Street to prevent recharge of groundwater from the retention pond. Currently, only composting and environmental monitoring operations continue at the site. The Town of Holden, under the supervision of the Massachusetts Department of Environmental Protection (MA DEP), has conducted quarterly monitoring of air, groundwater, and surface water, the results of which will be summarized in a report to MA DEP that is expected to be completed during 1996.

Volatile organic compounds (VOCs) and metals attributed to the landfill have consistently been detected in the groundwater near the landfill. A groundwater leachate seep is located north of the landfill, which cascades down a steep slope into the Quinapoxet River.

VOCs and metals have regularly been detected in the leachate stream. Sediment samples from the Quinapoxet River have documented concentrations of arsenic significantly above background. A surface water sample collected from the Quinapoxet River in 1980 contained over 600 parts per billion (ppb) 1,1,1-trichloroethane, 100 ppb of 1,1-dichloroethane, and 4 ppb of benzene. Surface water samples collected after 1980 sporadically contained low concentrations of VOCs. Two samples have been collected from the Wachusett Reservoir. In 1980, nothing was detected in the sample. In 1981, less than 1 ppb toluene was detected in the sample.

The concentrations of contaminants detected in groundwater and surface water have declined over time until the concentrations detected in the most recent samples are significantly lower than the concentrations detected in earlier samples. However, samples events between 1993 and 1995 have shown the following: sediments samples collected from the Quinapoxet River contained significantly elevated concentrations of arsenic; arsenic and vinyl chloride were present in the samples collected from the leachate stream in 1994; vinyl chloride was detected in groundwater samples collected in 1994; vinyl chloride was detected within all 15 gas vents that were sampled in June 1995.

The nearest private well is located about 0.3 miles southwest of the site on River Street. The nearest municipal well is about 1.1 miles east of the property and is part of the West Boylston Water District supply system. The Holden Water District and Sterling Water Department also have supply wells within 4 miles of the property. The total population relying on groundwater resources within 4-radial miles of the property is estimated at 20,582.

Groundwater on the property flows north, emerging at breakout points on the steep slope north of the landfill. The leachate flows into the Quinapoxet River about 300 feet upstream of the Interstate 190 bridge. During the START reconnaissance, the sediments of the Quinapoxet River at and downstream of the confluence with the leachate stream were stained a rust color. From this confluence, the Quinapoxet River flows east about 1 mile into the Wachusett Reservoir, then about 6.6 miles through the reservoir to the eastern end of the reservoir near the Town of Clinton. Water pumped by the Metropolitan District Commission from an intake near Clinton supplies drinking water to about 2.5 million people in the greater Boston area. A relatively

small portion of the water exiting the reservoir feeds the Nashua River. The 15-mile downstream pathway from the property ends on the Nashua River about 1.2 miles downstream of the Seven Bridge Road/Main Street Bridge in Lancaster, Massachusetts.

The Quinapoxet River, Wachusett Reservoir, and Nashua River are all recreational fisheries. Habitat for nine State-threatened or endangered species exists along the downstream pathway, none of which are along the Quinapoxet River. The Quinapoxet River is assumed to be a State-designated area for the protection and maintenance of aquatic life under the Clean Water Act. About 1.6 miles of wetlands frontage exists along the 15-mile downstream pathway.

Three employees work part time on the property to support the composting operations. The nearest residence is about 0.3 miles southwest of the property. An estimated 668 and 25,180 people live within 1 mile and 4 miles, respectively.

HOLDEN DUMP
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HOLDEN DUMP
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HOLDEN DUMP
REFERENCES (Concluded)

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ATTACHMENT A

HOLDEN DUMP

GROUNDWATER AND SURFACE WATER SAMPLE ANALYTICAL RESULTS
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL QUALITY ENGINEERING

Samples Collected September 1982

Department of Environmental Quality Engineering

Lawrence Experiment Station

NOV 9 1982

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Landfill	COLLECTED	September 14, 1982
	Test Well #6	RECEIVED	9/17/82 ANALYZED 9/23/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007299	APPROVED BY	JSP

	µg/l		µg/l
Diethyl ether	*		
1,1 dichloroethane	6.7		
Benzene	1.4		
Toluene	2.4		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts NOV 9 1982

Department of Environmental Quality Engineering

Lawrence Experiment Station

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Leachate Stream	COLLECTED	September 14, 1982
	Sample @ Breakout	RECEIVED	9/17/82 ANALYZED 9/22/82
	007291	ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER		APPROVED BY	Jas

	µg/l		µg/l
Dichlorofluoromethane	*	Ethyl benzene	16
Methylene chloride	11	Xylenes	20
1,2 dichloroethylene	3.4	1,1 dichloroethylene	11
Methyl ethyl ketone	47	Acetone	71
Benzene	1.0	Chloroethane	*
Methyl isobutyl ketone	1.0	diethyl ether	*
Tetrachloroethylene	1.0	Cumene	*
1,1,1 trichloroethane	370	1,1 dichloroethane	460
Toluene	16		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Lawrence Experiment Station

NOV 9 1982

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Landfill	COLLECTED	September 14, 1982
	top @ Shack Well #0	RECEIVED	9/17/82
		ANALYZED	9/22/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007294	APPROVED BY	

	µg/l		µg/l
NO PURGEABLE ORGANIC CONPOUNDS DETECTED			

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Lawrence Experiment Station

NOV 9 1982

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	L. Dayian
SOURCE	Leachate stream Sample @ river	COLLECTED	September 14, 1982
		RECEIVED	9/17/82 ANALYZED 9/22/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007292	APPROVED BY	

	µg/l		µg/l
NO PURGEABLE ORGANIC COMPOUNDS DETECTED			

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Department of Environmental Quality Engineering
Lawrence Experiment Station

NOV 9 1982

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Quinapoxet River	COLLECTED	September 14, 1982
	Upstream of Breakout	RECEIVED	9/17/82 ANALYZED 9/21/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007293	APPROVED BY	

	µg/l		µg/l
NO PURGEABLE ORGANIC COMPOUNDS DETECTED			

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Lawrence Experiment Station

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	Spindler
SOURCE	Groundwater fron I 190	COLLECTED	September 22, 1982
	@ River Street	RECEIVED	9/22/82 ANALYZED 9/23/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007328	APPROVED BY	

	µg/l		µg/l
NO PURGEABLE ORGANIC COMPOUNDS DETECTED			

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Landfill	COLLECTED	September 14, 1982
	Test Well #2	RECEIVED	9/17/82 ANALYZED 9/22/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007295	APPROVED BY	

	µg/l		µg/l
Diethyl ether	*		
1,2 dichloroethylene	16		
Benzene	7.3		
Toluene	32		
Ethyl benzene	16		
Cumene	*		
Xylenes	28		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts
Department Of Environmental Quality Engineering
Lawrence Experiment Station

NOV 9 1982

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Quinapoxet River	COLLECTED	September 14, 1982
	Below breakout	RECEIVED	9/17/82 ANALYZED 9/21/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007290	APPROVED BY	

	µg/l		µg/l
NO PURGEABLE ORGANIC COMPOUNDS DETECTED			

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Department of Environmental Quality Engineering

Lawrence Experiment Station

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Landfill	COLLECTED	September 14, 1982
	Test Well #4	RECEIVED	9/17/82 ANALYZED 9/23/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007297	APPROVED BY	JPP

	µg/l		µg/l
Diethyl ether			
1,2 dichloroethylene	2.1		
Benzene	1.9		
Toluene	4.1		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Lawrence Experiment Station

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Landfill	COLLECTED	September 14, 1982
	Test Well #5	RECEIVED	9/17/82 ANALYZED 9/23/82
		ANALYZED BY	J. E. Pellerin & A. R. Flaherty
SAMPLE NUMBER	007298	APPROVED BY	

	µg/l		µg/l
Diethyl ether	*		
1,1 dichloroethane	4.0		
Benzene	14		
Toluene	74		
Ethyl benzene	35		
Cumene	*		
Xylenes	110		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

Department of Environmental Quality Engineering
Lawrence Experiment Station

NOV 9

NOV 5 1982

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS OF PURGEABLE ORGANICS

CITY/TOWN	HOLDEN	COLLECTOR	J. Fuller
SOURCE	Landfill	COLLECTED	September 14, 1982
	Test Well #3	RECEIVED	9/17/82 ANALYZED 9/27/82
		ANALYZED BY	
SAMPLE NUMBER	007296	APPROVED BY	JCH

	µg/l		µg/l
Diethyl ether	*		
Benzene	1.0		
Toluene	4.2		
Ethyl benzene	3.3		
Xylenes	1.0		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap." Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

Quality control consisted of running laboratory blanks, duplicates, spikes and spiking each run with a three compound internal standard.

L = less than 1.0 ug/l.

* = No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

ATTACHMENT B

HOLDEN DUMP

SURFACE WATER SAMPLE ANALYTICAL RESULTS
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL QUALITY ENGINEERING

Samples Collected 1983

The Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Lawrence Experiment Station

MAR 31 1983

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

MAR 25 1983

SAMPLE NUMBER	L08884	CITY/TOWN	W. BOYLSTON
COLLECTOR	Spindler	COLLECTED	3 3 83
RECEIVED	3/7 83	ANALYZED	3 10 83

SOURCE: Quinapoxet River - downstream of landfill

APPLICATION: [illegible]

✓ No purgeable organic compounds detected.

RECEIVED
MAR 29 1983
Environmental Quality Engineering
University of Mass.

[illegible] purgeable organic compounds which were [illegible] aqueous solution at room temperature and this was adequate to [illegible] in this procedure.

[illegible] was available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

MAY 6 1983

MAY 9 1983

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

SAMPLE NUMBER	009069	CITY/TOWN	HOLDEN
COLLECTOR	Fuller	COLLECTED	April 7, 1983
RECEIVED	April 8, 1983	ANALYZED	April 20, 1983

SOURCE Quinapoxet River - downstream sampling point

APPROVED BY _____

☑ **No purgeable organic compounds detected.**

	ug/l		ug/l

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

*No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

APR 19 1983

APR 15 1983

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS OF PURGEABLE ORGANICS

SAMPLE NUMBER	008973	CITY/TOWN	HOLDEN
COLLECTOR	L. Dayian	COLLECTED	March 24, 1983
RECEIVED	March 24, 1983	ANALYZED	March 28, 1983

SOURCE Quinapoxet River

APPROVED BY [illegible]

☑ **No purgeable organic compounds detected.**

	ug/l		ug/l

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

-No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

ATTACHMENT C

HOLDEN DUMP

SURFACE WATER SAMPLE ANALYTICAL RESULTS
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL QUALITY ENGINEERING

Samples Collected April 1986

JUN 4 1986

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

SAMPLE NUMBER	019471	CITY/TOWN	HOLDEN
COLLECTOR	Germain	COLLECTED	4/30/86
RECEIVED	5/1/86	ANALYZED	5/14/86

SOURCE Quinapoxet - downstream - #4

APPROVED BY AH 6/2/86

JUN 2 1986

☐ No purgeable organic compounds detected.

	ug/l		ug/l
Methylene chloride	2.0		
Trichloroethylene	1.0		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

*No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

SAMPLE NUMBER	019468	CITY/TOWN	HOLDEN
COLLECTOR	Fuller	COLLECTED	4/30/86
RECEIVED	5/1/86	ANALYZED	5/14/86

SOURCE Leachate stream #2

APPROVED BY AF 6/2/86

☐ No purgeable organic compounds detected.

	ug/l		ug/l
Acetone	140		
Methyl ethyl ketone	110		
Benzene	2.0		
Methyl isobutyl ketone	4.1		

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

*No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

JUN 4 1986

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

SAMPLE NUMBER	019469	CITY/TOWN	HOLDEN
COLLECTOR	Fuller	COLLECTED	4/30/86
RECEIVED	5/1/86	ANALYZED	5/14/86

SOURCE Quinapoxet River - upstream #1

APPROVED BY [signature] 6/2/86

JUN 2 1986

[X] **No purgeable organic compounds detected.**

	ug/l		ug/l

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

JUN 4 1986

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

SAMPLE NUMBER	019472	CITY/TOWN	HOLDEN
COLLECTOR	Fuller	COLLECTED	4/30/86
RECEIVED	5/1/86	ANALYZED	5/14/86

SOURCE Worc. Office VOA free water

APPROVED BY AH 6/2/86

JUN 2 1986

[X] No purgeable organic compounds detected.

	ug/l		ug/l

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

*No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS

OF PURGEABLE ORGANICS

SAMPLE NUMBER	019470	CITY/TOWN	HOLDEN
COLLECTOR	Germain	COLLECTED	4/30/86
RECEIVED	5/1/86	ANALYZED	5/14/86

SOURCE Quincy - Quincy River below leachate #3

APPROVED BY AH 6/2/86

[X] No purgeable organic compounds detected.

JUN 2 1986

	ug/l		ug/l

The sample was analyzed according to the EPA procedure, "Method 624-Organics by Purge and Trap". Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

L1 = less than 1.0 ug/l L5 = less than 5.0 ug/l L10 = less than 10 ug/l

*No standard available for quantitation. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

ATTACHMENT D

HOLDEN DUMP

LEACHATE STREAM SAMPLE ANALYTICAL RESULTS
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL QUALITY ENGINEERING

Samples Collected September 1987

The Commonwealth of Massachusetts
Department Of Environmental Quality Engineering
Lawrence Experiment Station
37 Shattuck Street, Lawrence, Massachusetts 01843

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS OF PURGEABLE ORGANICS

OCT 29 1987

SAMPLE NUMBER 027719
COLLECTOR Poirier/RAO
RECEIVED 9/3/87
SOURCE Holden Landfill - S-1, Leachate at seepage point

CITY/TOWN HOLDEN
COLLECTED 9/2/87
ANALYZED 9/3/87

APPROVED BY: [signature] 10/9/87

☐ No purgeable organic compounds detected, 1.0 ug/L

	ug/g		ug/g
1,1-dichloroethane	15		
1,2-dichloroethylene	10		
1,1,1-trichloroethane	5.3		
Trichloroethylene	L1		
Benzene	2.3		
Ethyl benzene	1.1		
Xylenes	1.3		
Dichlorofluoromethane	*		
Diethyl ether	*		
Isopropyl benzene	*		

The sample was analyzed according to the EPA procedure, "Method 8240, Gas Chromatography Mass Spectrometry for Volatile Organics", SW-846 1B. Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

*No standard available for quantification. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

The Commonwealth of Massachusetts
Department Of Environmental Quality Engineering
Lawrence Experiment Station
37 Shattuck Street, Lawrence, Massachusetts 01843

OCT 29 1987

GAS CHROMATOGRAPHY-MASS SPECTROMETRY ANALYSIS OF PURGEABLE ORGANICS

SAMPLE NUMBER 027718
COLLECTOR Poirier/RAO
RECEIVED 9/3/87
SOURCE Holden Landfill - S2 Leachate downstream

CITY/TOWN HOLDEN
COLLECTED 9/2/87
ANALYZED 9/3/87

APPROVED BY: AJ 9/30/87

☐ No purgeable organic compounds detected

	ug/g		ug/g
Acetone	31		
1,1-dichloroethane	3.0		
1,2-dichloroethylene	L1		
Methyl ethyl ketone	19		
Benzene	1.8		
Methyl isobutyl ketone	5.8		
Toluene	5.2		
Ethyl benzene	2.0		
Xylenes	2.0		
Isopropyl benzene	*		

The sample was analyzed according to the EPA procedure, "Method 8240, Gas Chromatography Mass Spectrometry for Volatile Organics", SW-846 1B. Only those organic compounds which have a significant vapor pressure in aqueous solution at room temperature and thus are amenable to partition by purging are detected by this procedure.

*No standard available for quantification. The mass spectrum obtained was compared to a mass spectral index and a mass spectral data base for identification.

REMARKS:

ATTACHMENT E

HOLDEN DUMP

SEDIMENT SAMPLE ANALYTICAL RESULTS
METROPOLITAN DISTRICT COMMISSION

Samples Collected During 1992 and 1993

HOLDEN LANDFILL

QUINAPOXET RIVER - TOTAL METALS, mg/kg **
5/14/93

PARAMETER	ABOVE LANDFILL #1	BREAKOUT #2	BELOW LANDFILL #3
% Solid	57.8	43.3	33.6
Arsenic	2.97	1990	30.6
Barium	42.1	508	56
Cadmium	<0.7	<0.9	<1.0
Chromium	15.2	13.4	24.5
Copper	8.21	<2.0	14.4
Lead	11.9	12.6	24.1
Manganese	348	27300	524
Mercury	<0.2	<0.2	<0.2
Selenium	<0.9	<1.0	<1.0
Silver	<0.7	8.67	<1.0
Zinc	44.7	52.3	57.5

** Data reported as dry weight

#1 in pool at confluence of Trout Bk. and Quinapoxet R. - soft sediment
#2 where breakout comes out of bank at edge of Quinapoxet R. - red "goo"
#3 along island in middle of Quinapoxet R. - organic/gravel mix

HOLDEN LANDFILL

QUINAPOXET RIVER - TOTAL METALS, mg/kg **
10/15/92

PARAMETER	AT BREAKOUT*	(duplicate)
% Solid	82.1	82.1
Arsenic	75.9	68.2
Barium	21.5	22.3
Cadmium	1.07	1.31
Chromium	6.21	6.57
Copper	1.79	1.19
Lead	4.78	6.52
Manganese	507	534
Mercury	<0.1	<0.1
Selenium	<0.6	<0.6
Silver	<1.0	<1.0
Zinc	22.9	29.1

* sample collected in Quinapoxet R. at breakout
** Data reported as dry weight

MAY 20 1994

by hand MDC - Clinton
Ed. Brank

QUINAPOXET RIVER - TOTAL METALS, mg/kg **
08/03/93

PARAMETER	ABOVE FISH LADDER								BELOW FISH LADDER		
	0 - 1"	1 - 2"	2 - 3"	3 - 4"	0 - 3"	3 - 5"	5 - 7"	7 - 9"	0 - 1"	1 - 2"	2 - 3"
% Solid	93	89	84	77	92	87	84	76	84	83	71
Phosphorus,	2.2	7.9	13	6.5	4.3	5.7	6	3.9	3.6	16	20
Aluminum	2800	2000	3000	2600	2300	2100	1500	2300	2000	2700	2400
Arsenic	6.6	6.7	3.5	2.2	7.1	12	2	1.8	11	8.6	9.4
Cadmium	0.43	ND	ND	ND	0.43	ND	ND	ND	0.48	0.48	0.56
Chromium	7.7	4.9	9	15	6.5	6.4	4.3	11	3.8	7.2	6.2
Copper	3.4	3.1	6.2	19	3.9	3.7	3.3	10	1.9	3.4	5.1
Iron	5400	3300	4900	3200	4200	3600	2600	3100	4300	5200	4700
Lead	6.5	6.3	8.1	12	6.1	5.5	5.2	8.4	4.8	6.7	9
Mercury	ND	ND	ND	0.12	ND	ND	ND	0.13	0.12	ND	ND
Zinc	17	13	19	16	17	15	10	14	19	21	29

** Data reported as dry weight
samples taken with a core sampler (1.5 - 2" dia.)
driven into sediment to a depth of 3" - 9"

MAY 2 6 1994

ATTACHMENT F

HOLDEN DUMP

GROUNDWATER AND SURFACE WATER SAMPLE ANALYTICAL RESULTS AMERICAN ENVIRONMENTAL LABORATORIES, INC.

Samples Collected December 1994

AMERICAN ENVIRONMENTAL
LABORATORIES, INC.

HOLDEN LANDFILL
FIELD TESTING RESULTS

LOCATION	pH (S.U.)	TEMP. (^{0}C)	SPEC COND. UO/CM	DEPTH TO WATER (FT.)	DATE & TIME
SEA - 1A	5.99	11	180	17.50	12/9/94/09:00
SEA - 6	6.44	11	30	22.73	12/9/94/09:30
HDOW - 3	5.95	12	625	7.58	12/9/94/10:00
HDOW - 5	7.31	10	120	34.20	12/9/94/10:30
HDOW - 6	6.12	10	140	16.20	12/9/94/11:00
HDOW - 7A	7.15	11	20	11.57	12/9/94/11:30
HDOW - 8	6.98	11	80	20.70	12/9/94/12:00
HDOW - 9C	6.42	10	280	45.60	12/9/94/12:30
HDOW - 10	6.82	10	200	45.65	12/9/94/01:00
HDOW - 11B	6.93	10	100	31.40	12/9/94/01:30
HDOW - 12	7.32	11	80	6.52	12/9/94/02:00
HDOW - 13	6.77	10	350	9.70	12/9/94/02:30
POND ON SITE	7.45	2	200	N/A	N/A
LEACHATE	6.72	10	220	N/A	N/A
F.W. BOD	N/R	N/R	N/R	N/A	N/A
UPSTREAM	7.28	7	80	N/A	N/A
DOWNSTREAM	7.22	7	80	N/A	N/A

N/R = NOT REQUIRED/REQUESTED

N/A = NOT APPLICABLE

VALUES FOR WELLS OBTAINED AFTER PURGING WELLS

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

AMERICAN ENVIRONMENTAL
LABORATORIES, INC.

REPORT NUMBER: AA53403

- LAB ID # : MA076 -

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Upstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.03	MG/L	12/10/94	0.001	EPA # 200.7
LEAD	ND	MG/L	12/10/94	0.0005	EPA # 239.2
COPPER	ND	MG/L	12/10/94	0.006	EPA # 200.7
ZINC	1.2	MG/L	12/10/94	0.003	EPA # 200.7
CADMIUM	ND	MG/L	12/10/94	0.003	EPA # 200.7
MERCURY	ND	MG/L	12/12/94	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	12/10/94	0.006	EPA # 200.7
ARSENIC	ND	MG/L	12/10/94	0.0002	EPA # 206.2
TOTAL CYANIDE	ND	MG/L	12/10/94	0.01	EPA # 335.2
SELENIUM	ND	MG/L	12/09/94	0.0005	EPA # 270.2
BARIUM	1.8	MG/L	12/09/94	0.001	EPA # 200.7
SILVER	ND	MG/L	12/09/94	0.003	EPA # 200.7

METHOD OF EXTRACTION: #3005

ANALYZED BY: (FG)
REVIEWED BY: (JM)

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

*** - Exceeds EPA Guidelines**
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

Please Recycle

AMERICAN ENVIRONMENTAL LABORATORIES, INC.

REPORT NUMBER: AA53403

- LAB ID # : MA076 -

TO: Town of Holden	**DATE RECEIVED** : 12/08/94
ATTN: John Westerling	**DATE COLLECTED** 12/07/94
1204 Main St.	**COLLECTED BY** : AEL - EL
Holden, MA 01520	**MATRIX** : Water
LAB/ID NUMBER : AA53403	
SAMPLE DESCRIPTION: Upstream / River St. Landfill	

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
CHEMICAL OXYGEN DEMAND	10.0	MG/L	12/09/94	1.0	SM # 508
IRON	0.29	MG/L	12/10/94	0.003	EPA # 200.7
HARDNESS	22.3	MG/L	12/10/94	1.0	SM # 314B
CHLORIDE	22.0	MG/L	12/12/94	1.0	SM # 407C

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

ND - Not Detected
UOM - Unit of Measure

Please Recycle

AMERICAN ENVIRONMENTAL LABORATORIES, INC.

- LAB ID # : MA076 -

REPORT NUMBER: AA53403

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Upstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
^Benzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromodichloromethane (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromomethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromoform (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Carbon Tetrachloride	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chloroethane	ND	UG/L	12/20/94	5.0	EPA 624/8240
^Chloroform (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chloromethane	ND	UG/L	12/20/94	5.0	EPA 624/8240
^Dibromochloromethane (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,3-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,4-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1-Dichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1-Dichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trans-1,2-Dichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichloropropane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Cis-1,3-Dichloropropene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trans-1,3-Dichloropropene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Ethylbenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Methylene Chloride	ND	UG/L	12/20/94	2.5	EPA 624/8240
^1,1,2,2-Tetrachloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Tetrachloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Toluene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1,1-Trichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1,2-Trichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trichlorofluoromethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^m,p-Xylenes	ND	UG/L	12/20/94	2.0	EPA 624/8240
^o-Xylene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Vinyl Chloride	ND	UG/L	12/20/94	1.0	EPA 624/8240
^MTBE	ND	UG/L	12/20/94	1.0	EPA 624/8240

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AMERICAN ENVIRONMENTAL
LABORATORIES, INC.

- LAB ID # : MA076 -

REPORT NUMBER: AA53404

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Downstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.03	MG/L	12/10/94	0.001	EPA # 200.7
LEAD	ND	MG/L	12/10/94	0.0005	EPA # 239.2
COPPER	ND	MG/L	12/10/94	0.006	EPA # 200.7
ZINC	1.2	MG/L	12/10/94	0.003	EPA # 200.7
CADMIUM	ND	MG/L	12/10/94	0.003	EPA # 200.7
MERCURY	ND	MG/L	12/12/94	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	12/10/94	0.006	EPA # 200.7
ARSENIC	ND	MG/L	12/10/94	0.0002	EPA # 206.2
TOTAL CYANIDE	ND	MG/L	12/10/94	0.01	EPA # 335.2
SELENIUM	ND	MG/L	12/09/94	0.0005	EPA # 270.2
BARIUM	1.8	MG/L	12/09/94	0.001	EPA # 200.7
SILVER	ND	MG/L	12/09/94	0.003	EPA # 200.7

METHOD OF EXTRACTION: #3005

ANALYZED BY: (FG)
REVIEWED BY: (JP)

*** - Exceeds EPA Guidelines**
MDL - Method Detection Limit

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INC.

- LAB ID # : MA076 -

REPORT NUMBER: AA53404

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

PO/ID NUMBER : AA53403

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

SAMPLE DESCRIPTION: Downstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
CHEMICAL OXYGEN DEMAND	10.0	MG/L	12/09/94	1.0	SM # 508
IRON	0.29	MG/L	12/10/94	0.003	EPA # 200.7
HARDNESS	22.5	MG/L	12/10/94	1.0	SM # 314B
CHLORIDE	22.0	MG/L	12/12/94	1.0	SM # 407C

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

ND - Not Detected
UOM - Unit of Measure

Please Recycle

AMERICAN ENVIRONMENTAL LABORATORIES, INC.

- LAB ID # : MA076 -

REPORT NUMBER: AA53406

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	2.2	MG/L	12/10/94	0.001	EPA # 200.7
LEAD	ND	MG/L	12/10/94	0.0005	EPA # 239.2
COPPER	ND	MG/L	12/10/94	0.006	EPA # 200.7
ZINC	1.1	MG/L	12/10/94	0.003	EPA # 200.7
CADMIUM	ND	MG/L	12/10/94	0.003	EPA # 200.7
MERCURY	ND	MG/L	12/12/94	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	12/10/94	0.006	EPA # 200.7
ARSENIC	0.53	MG/L	12/10/94	0.0002	EPA # 206.2
TOTAL CYANIDE	ND	MG/L	12/10/94	0.01	EPA # 335.2
SELENIUM	ND	MG/L	12/09/94	0.0005	EPA # 270.2
BARIUM	1.7	MG/L	12/09/94	0.001	EPA # 200.7
SILVER	ND	MG/L	12/09/94	0.003	EPA # 200.7

METHOD OF EXTRACTION: #3005

ANALYZED BY: ( )
REVIEWED BY: ( )

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(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

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AMERICAN ENVIRONMENTAL LABORATORIES, INC.

REPORT NUMBER: AA53406

- LAB ID # : MA076 -

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
CHEMICAL OXYGEN DEMAND	12.0	MG/L	12/09/94	1.0	SM # 508
IRON	40.2	MG/L	12/10/94	0.003	EPA # 200.7
HARDNESS	88.8	MG/L	12/10/94	1.0	SM # 314B
CHLORIDE	38.0	MG/L	12/12/94	1.0	SM # 407C

ANALYZED BY: (SR)
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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MDL - Method Detection Limit

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Please Recycle

AMERICAN ENVIRONMENTAL LABORATORIES, INC.

REPORT NUMBER: AA53406

- LAB ID # : MA076 -

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
^Benzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromodichloromethane (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromomethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromoform (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Carbon Tetrachloride	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chloroethane	ND	UG/L	12/20/94	5.0	EPA 624/8240
^Chloroform (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chloromethane	ND	UG/L	12/20/94	5.0	EPA 624/8240
^Dibromochloromethane (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,3-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,4-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1-Dichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1-Dichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trans-1,2-Dichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichloropropane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Cis-1,3-Dichloropropene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trans-1,3-Dichloropropene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Ethylbenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Methylene Chloride	ND	UG/L	12/20/94	2.5	EPA 624/8240
^1,1,2,2-Tetrachloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Tetrachloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Toluene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1,1-Trichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1,2-Trichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trichlorofluoromethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^m,p-Xylenes	ND	UG/L	12/20/94	2.0	EPA 624/8240
^o-Xylene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Vinyl Chloride	1.8	UG/L	12/20/94	1.0	EPA 624/8240
^MTBE	ND	UG/L	12/20/94	1.0	EPA 624/8240

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AMERICAN ENVIRONMENTAL LABORATORIES, INC.

REPORT NUMBER: AA53406

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
DILUTION FACTOR: NONE					
PERCENT SURROGATE RECOVERY:					
BFB	94%				
p-DFB	101%				
CLB-d5	96%				
SUBCONTRACTED: MA138					

ANALYZED BY: (GM)
REVIEWED BY: (JP)

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

^ - Subcontracted Analysis
ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INC.

- LAB ID # : MA076 -

REPORT NUMBER: AA53406

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
^Acetone	ND	UG/L	12/20/94	10	524.2/8260
^Acrolein	ND	UG/L	12/20/94	10	524.2/8260
^Acrylonitrile	ND	UG/L	12/20/94	5	524.2/8260
^Bromochloromethane	ND	UG/L	12/20/94	1	524.2/8260
^Bromomethane	ND	UG/L	12/20/94	1	524.2/8260
^Carbon Disulfide	ND	UG/L	12/20/94	5	524.2/8260
^Chloroethane	ND	UG/L	12/20/94	5	524.2/8260
^Chloromethane	ND	UG/L	12/20/94	5	524.2/8260
^1,2Dibromo3chloropropane	ND	UG/L	12/20/94	1	524.2/8260
^1,2Dibromoethane	ND	UG/L	12/20/94	1	524.2/8260
^Dichlorodifluoromethane	ND	UG/L	12/20/94	1	524.2/8260
^Methyl Ethyl Ketone	ND	UG/L	12/20/94	5	524.2/8260
^4-Methyl-2-Pentanone	ND	UG/L	12/20/94	5	524.2/8260
^Methyl Butyl Ketone	ND	UG/L	12/20/94	5	524.2/8260
^trans-1,4Dichloro2Butene	ND	UG/L	12/20/94	1	524.2/8260
^Trichlorofluoromethane	ND	UG/L	12/20/94	1	524.2/8260
^Vinyl Acetate	ND	UG/L	12/20/94	1	524.2/8260
^Vinyl Chloride	1.8	UG/L	12/20/94	1	524.2/8260

SUBCONTRACTED: MA138

ANALYZED BY: (GM)
REVIEWED BY: (JP)

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

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AMERICAN ENVIRONMENTAL
LABORATORIES, INC.

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Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: MW HDOW-13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	6.5	MG/L	12/10/94	0.001	EPA # 200.7
LEAD	0.06	MG/L	12/10/94	0.0005	EPA # 239.2
COPPER	0.06	MG/L	12/10/94	0.006	EPA # 200.7
ZINC	1.0	MG/L	12/10/94	0.003	EPA # 200.7
CADMIUM	ND	MG/L	12/10/94	0.003	EPA # 200.7
MERCURY	ND	MG/L	12/12/94	0.0002	EPA # 245.1
CHROMIUM	0.01	MG/L	12/10/94	0.006	EPA # 200.7
ARSENIC	0.84	MG/L	12/10/94	0.0002	EPA # 206.2
TOTAL CYANIDE	ND	MG/L	12/10/94	0.01	EPA # 335.2
SELENIUM	ND	MG/L	12/09/94	0.0005	EPA # 270.2
BARIUM	2.1	MG/L	12/09/94	0.001	EPA # 200.7
SILVER	ND	MG/L	12/09/94	0.003	EPA # 200.7

METHOD OF EXTRACTION: #3005

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

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COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: MW HDOW-13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
CHEMICAL OXYGEN DEMAND	12.0	MG/L	12/09/94	1.0	SM # 508
IRON	51.8	MG/L	12/10/94	0.003	EPA # 200.7
HARDNESS	190.0	MG/L	12/10/94	1.0	SM # 314B
CHLORIDE	15.0	MG/L	12/12/94	1.0	SM # 407C

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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MDL - Method Detection Limit

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DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: MW HDOW-13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
^Benzene	1.3	UG/L	12/20/94	1.0	EPA 624/8240
^Bromodichloromethane (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromomethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Bromoform (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Carbon Tetrachloride	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chloroethane	ND	UG/L	12/20/94	5.0	EPA 624/8240
^Chloroform (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Chloromethane	ND	UG/L	12/20/94	5.0	EPA 624/8240
^Dibromochloromethane (THM)	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,3-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,4-Dichlorobenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1-Dichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1-Dichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trans-1,2-Dichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,2-Dichloropropane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Cis-1,3-Dichloropropene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trans-1,3-Dichloropropene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Ethylbenzene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Methylene Chloride	ND	UG/L	12/20/94	2.5	EPA 624/8240
^1,1,2,2-Tetrachloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Tetrachloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Toluene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1,1-Trichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^1,1,2-Trichloroethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trichloroethene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Trichlorofluoromethane	ND	UG/L	12/20/94	1.0	EPA 624/8240
^m,p-Xylenes	ND	UG/L	12/20/94	2.0	EPA 624/8240
^o-Xylene	ND	UG/L	12/20/94	1.0	EPA 624/8240
^Vinyl Chloride	2.6	UG/L	12/20/94	1.0	EPA 624/8240
^MTBE	ND	UG/L	12/20/94	1.0	EPA 624/8240

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AMERICAN ENVIRONMENTAL
LABORATORIES, INC.

REPORT NUMBER: AA53407

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

BFB	94%
p-DFB	101%
CLB-d5	93%

SUBCONTRACTED: MA138

ANALYZED BY: ( )
REVIEWED BY: ( )

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

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REPORT NUMBER: AA53407

- LAB ID # : MA076 -

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Holden, MA 01520

DATE RECEIVED : 12/08/94
DATE COLLECTED 12/07/94
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA53403

SAMPLE DESCRIPTION: MW HDOW-13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
^Acetone	ND	UG/L	12/20/94	10	524.2/8260
^Acrolein	ND	UG/L	12/20/94	10	524.2/8260
^Acrylonitrile	ND	UG/L	12/20/94	5	524.2/8260
^Bromochloromethane	ND	UG/L	12/20/94	1	524.2/8260
^Bromomethane	ND	UG/L	12/20/94	1	524.2/8260
^Carbon Disulfide	ND	UG/L	12/20/94	5	524.2/8260
^Chloroethane	ND	UG/L	12/20/94	5	524.2/8260
^Chloromethane	ND	UG/L	12/20/94	5	524.2/8260
^1,2Dibromo3chloropropane	ND	UG/L	12/20/94	1	524.2/8260
^1,2Dibromoethane	ND	UG/L	12/20/94	1	524.2/8260
^Dichlorodifluoromethane	ND	UG/L	12/20/94	1	524.2/8260
^Methyl Ethyl Ketone	ND	UG/L	12/20/94	5	524.2/8260
^4-Methyl-2-Pentanone	ND	UG/L	12/20/94	5	524.2/8260
^Methyl Butyl Ketone	ND	UG/L	12/20/94	5	524.2/8260
^trans-1,4Dichloro2Butene	ND	UG/L	12/20/94	1	524.2/8260
^Trichlorofluoromethane	ND	UG/L	12/20/94	1	524.2/8260
^Vinyl Acetate	ND	UG/L	12/20/94	1	524.2/8260
^Vinyl Chloride	2.6	UG/L	12/20/94	1	524.2/8260

SUBCONTRACTED: MA138

ANALYZED BY: ( )
REVIEWED BY: ( )

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

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^ - Subcontracted Analysis
ND - Not Detected
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ATTACHMENT G

HOLDEN DUMP

GAS SAMPLING ANALYTICAL RESULTS
F. DAVID PLOSS ASSOCIATES, INC.

Samples Collected June 1995

Project No.: E029408

REPORT

HOLDEN LANDFILL GAS SAMPLING

6/20/95

Prepared by: H. Robert Nyce, Jr.
F. David Ploss Associates, Inc.

Prepared for: Mike Diamantopoulos.
American Environmental Labs

AMERICAN ENVIRONMENTAL LABS
60 ELM HILL AVE.
LEOMINSTER, MA

MONITORING

On June 20, 1995, environmental monitoring was conducted at the Holden Landfill Site in Holden, MA to determine levels of methane, vinyl chloride and hydrogen sulfide present in air in the existing gas vents.

METHODOLOGY

Land fill gases were monitored at each of 15 gas vents indicated in Appendix B. The monitoring equipment probe was inserted into the gas vent and the sample was analyzed. Each vent was monitored for approximately two minutes and the highest concentration was recorded.

MONITORING EQUIPMENT

Methane and vinyl chloride were measured using a Foxboro Miran 1BX Ambient Air Analyzer. The Miran 1BX is a portable, microprocessor controlled single beam spectrophotometer used to measure concentrations of toxic gases or vapors in ambient air.

Hydrogen sulfide was measured using a Bacharach Sentinel 44 personal multi gas monitor with sample draw capability. The sentinel 44 is an electronic gas specific measuring device calibrated for hydrogen sulfide.

Additional information for both devices is available in Appendix B.

EQUIPMENT CALIBRATION

The Miran 1BX is calibrated internally and is electronically zeroed prior to measurement. The Sentinel 44 was calibrated on February 28, 1995 and is electronically zeroed prior to measurement.

CURRENT MONITORING DATA

See Figure 1 for gas vent locations

Monitoring Results for Vinyl Chloride				
Gas Vent	Date	Time	PPM	%LEL
1	6/20/95	8:30	1.0	0.0%
2	6/20/95	8:32	1.2	0.0%
3	6/20/95	8:34	1.6	0.0%
4	6/20/95	8:36	2.1	0.0%
5	6/20/95	8:39	2.7	0.0%
6	6/20/95	8:42	3.0	0.0%
7	6/20/95	8:44	3.4	0.0%
8	6/20/95	8:48	3.8	0.0%
9	6/20/95	8:50	4.2	0.0%
10	6/20/95	8:53	4.2	0.0%
11	6/20/95	8:55	4.3	0.0%
12	6/20/95	8:57	4.5	0.0%
13	6/20/95	8:59	4.7	0.0%
14	6/20/95	9:05	5.3	0.0%
15	6/20/95	9:01	5.0	0.0%

ND - None Detected

Monitoring Results for Methane				
Gas Vent	Date	Time	PPM	%LEL
1	6/20/95	9:13	2.4	0.0%
2	6/20/95	9:16	2.6	0.0%
3	6/20/95	9:18	2.1	0.0%
4	6/20/95	9:20	6.7	0.0%
5	6/20/95	9:23	7.6	0.0%
6	6/20/95	9:25	11	0.0%
7	6/20/95	9:28	15	0.0%
8	6/20/95	9:30	16	0.0%
9	6/20/95	9:33	18	0.0%
10	6/20/95	9:35	16	0.0%
11	6/20/95	9:37	17	0.0%
12	6/20/95	9:40	105	0.0%
13	6/20/95	9:42	19	0.0%
14	6/20/95	9:47	22	0.0%
15	6/20/95	9:45	23	0.0%

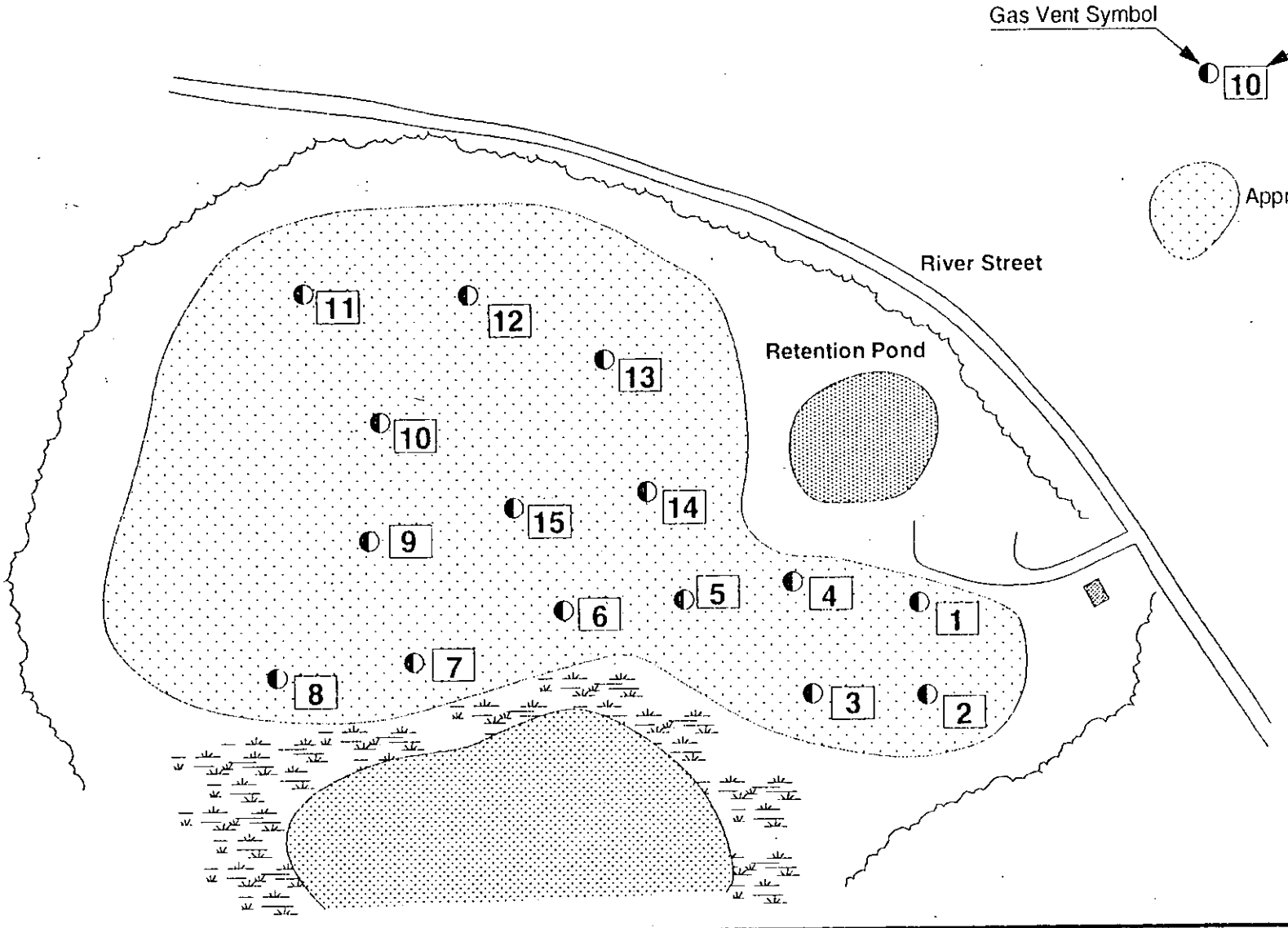
CURRENT MONITORING DATA

Monitoring Results for Hydrogen Sulfide				
Gas Vent	Date	Time	PPM	%LEL
1	9/8/94	10:35	ND	0.0%
2	9/8/94	10:37	ND	0.0%
3	9/8/94	10:39	ND	0.0%
4	9/8/94	10:41	ND	0.0%
5	9/8/94	10:44	ND	0.0%
6	9/8/94	10:46	ND	0.0%
7	9/8/94	10:48	ND	0.0%
8	9/8/94	10:50	ND	0.0%
9	9/8/94	10:53	ND	0.0%
10	9/8/94	10:55	ND	0.0%
11	9/8/94	10:57	ND	0.0%
12	9/8/94	10:59	ND	0.0%
13	9/8/94	11:02	ND	0.0%
14	9/8/94	11:07	ND	0.0%
15	9/8/94	11:05	ND	0.0%

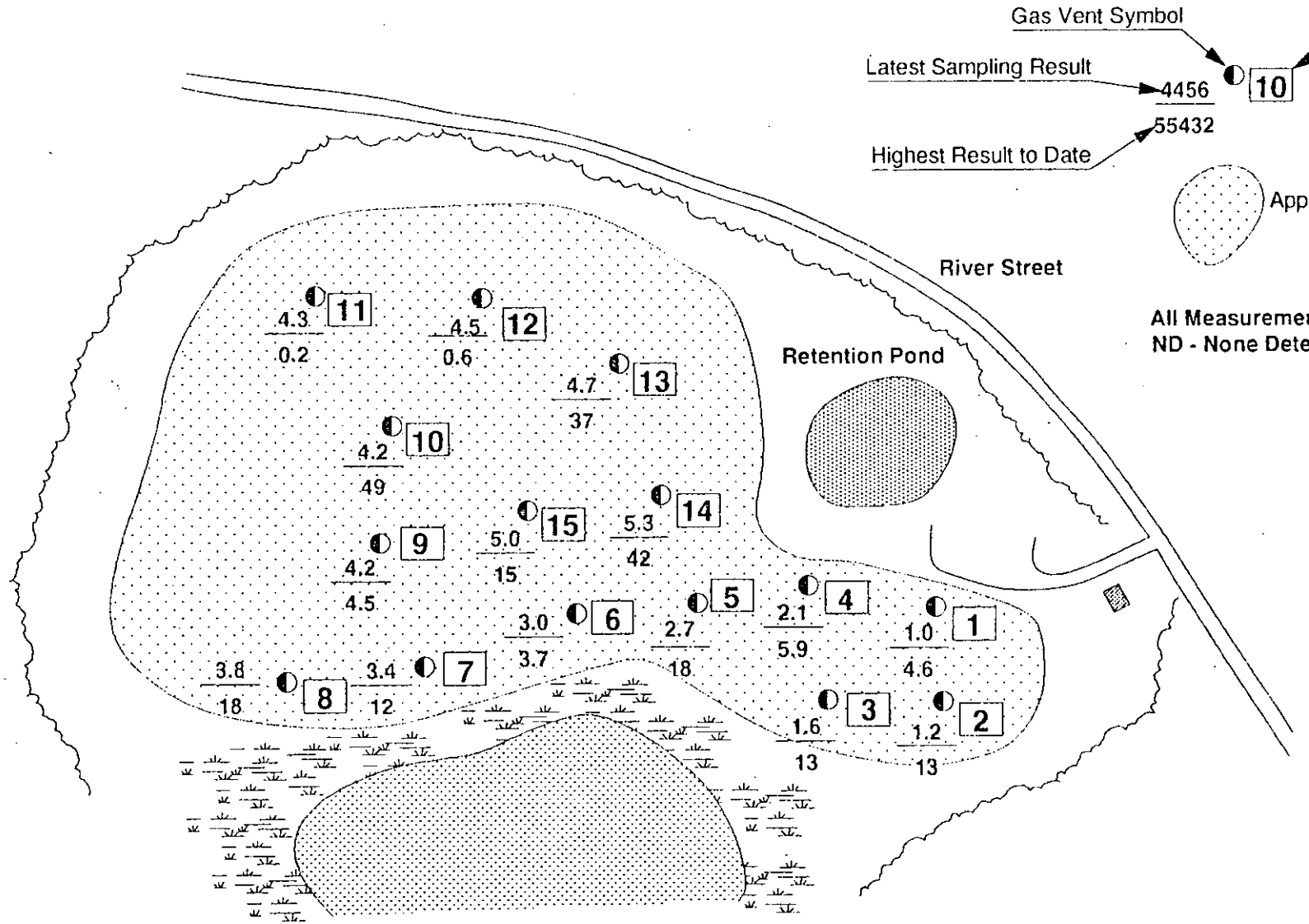
ND - None Detected

CURRENT METEOROLOGICAL DATA

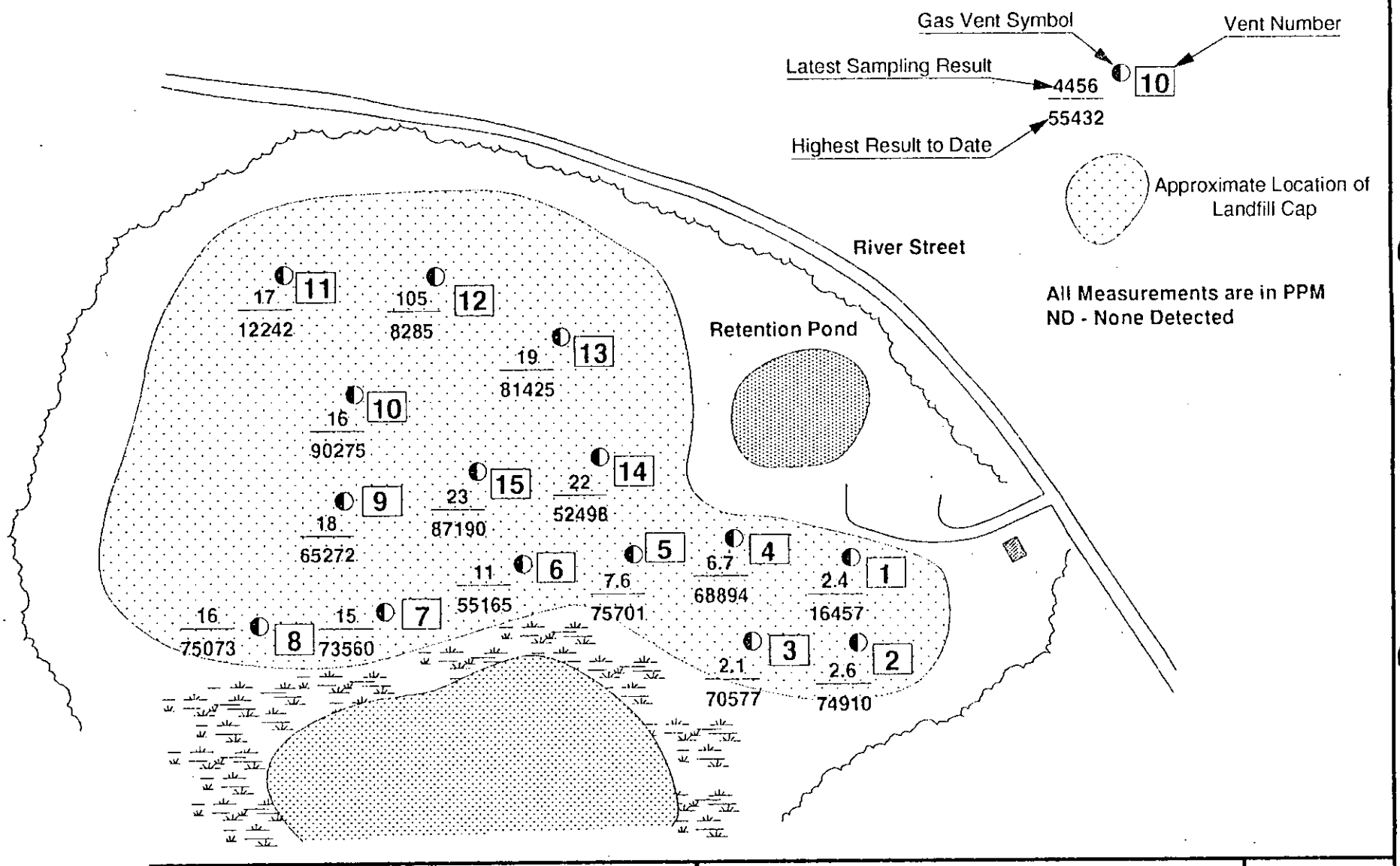
	Temperature					Barometric	
Date	High	Low	Mean	Normal	Winds	Pressure	Precipitation
6/20/95	86	65	76	66	NW 5 MPH	29.85	None



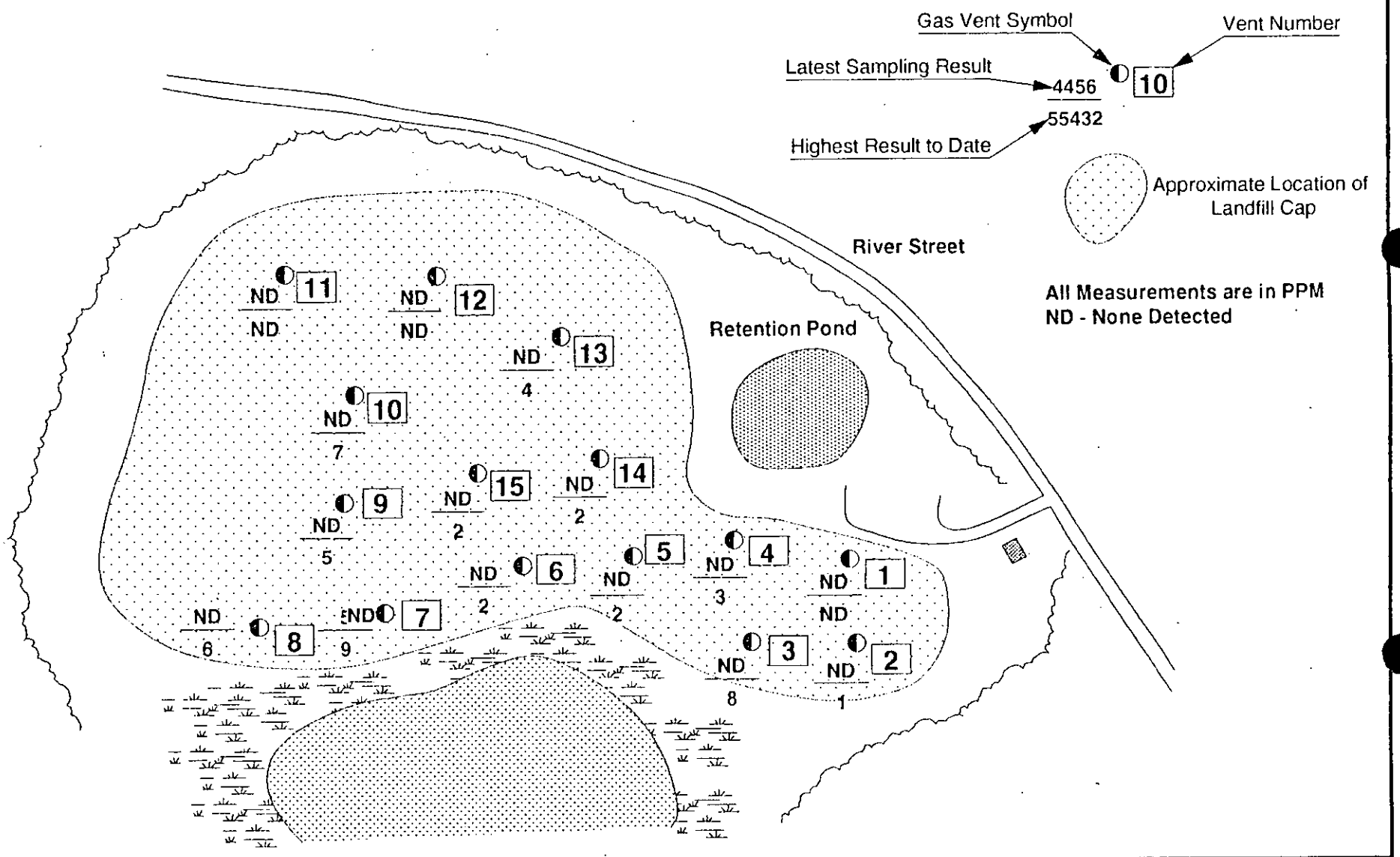
Sheet Title: Gas Vent Locations	Symbols/Notes: ◐ Gas Vent		PLOSS ASSOCIATES 360 Church St. Northboro, Ma.
Project: **Holden Landfill Holden, MA**		Figure Number: 1 / Approximate Scale: Not to Scale	
		Drawn By: HRN / Date: 6/22/95	



Sheet Title: Vinyl Chloride Concentration (ppm)	Symbols/Notes: ◐ Gas Vent		PLOSS ASSOCIATES 360 Church St. Northboro, Ma.
Project: Holden Landfill Holden, MA		Figure Number: 2	Approximate Scale: Not to Scale
		Drawn By: HRN	Date: 6/22/95



Sheet Title: Methane Concentration (ppm)	Symbols/Notes: ◐ Gas Vent		PLOSS ASSOCIATES 360 Church St. Northboro, Ma.
Project: Holden Landfill, Holden, MA		Figure Number: 3	Approximate Scale: Not to Scale
		Drawn By: HRN	Date: 6/22/95



Sheet Title: Hydrogen Sulfide Concentration (ppm)	Symbols/Notes: ◐ Gas Vent		PLOSS ASSOCIATES 360 Church St. Northboro, Ma.
Project: Holden Landfill, Holden, MA		Figure Number: 4 / Approximate Scale: Not to Scale	
		Drawn By: HRN / Date: 6/22/95	

APPENDIX A

PREVIOUS RESULTS

PREVIOUS MONITORING DATA

Monitoring Results for Vinyl Chloride (PPM)					
Gas Vent	6/10-11/94	9/8/94	12/15/94	3/15/95	6/20/95
1	0.1	4.6	ND	0.2	1.0
2	0.8	0.4	1.7	13	1.2
3	13	0.4	ND	6.3	1.6
4	5.9	ND	ND	5.9	2.1
5	8.7	4.4	ND	18	2.7
6	3.7	2.3	ND	2.9	3.0
7	4.9	1.7	1.1	12	3.4
8	6.9	4.3	7.1	18	3.8
9	2.5	2.6	0.6	4.5	4.2
10	8.7	49	0.6	22	4.2
11	0.2	0.2	ND	ND	4.3
12	0.3	0.6	ND	ND	4.5
13	19	36	13	37	4.7
14	16	34	2.9	42	5.3
15	10	9.6	4.3	15	5.0

ND - None Detected

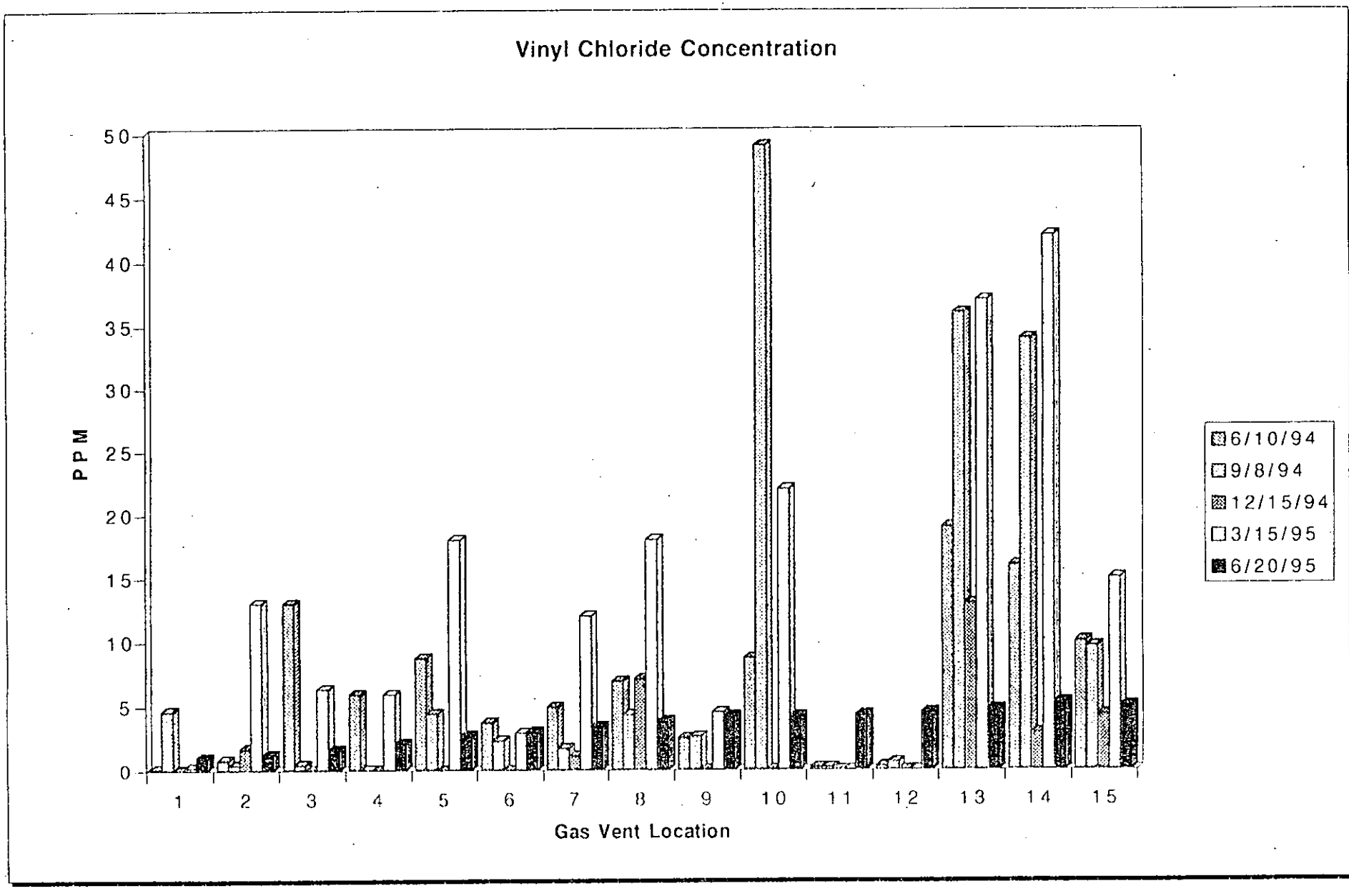
Monitoring Results for Methane (PPM)					
Gas Vent	6/10-11/94	9/8/94	12/15/94	3/15/95	6/20/95
1	8883	5185	16457	4100	2.4
2	5607	52959	67079	74910	2.6
3	41602	3764	38877	70577	2.1
4	25019	3550	46852	68894	6.7
5	64032	40646	66194	75701	7.6
6	40166	41440	49571	55165	11
7	31585	39014	65633	73560	15
8	32835	61799	66633	75073	16
9	26656	56185	39295	65272	18
10	27769	90275	66855	74306	16
11	11	12242	459	3319	17
12	241	8285	100	285	105
13	66936	81425	62270	73560	19
14	45601	52495	8648	67287	22
15	61539	87190	57696	73413	23

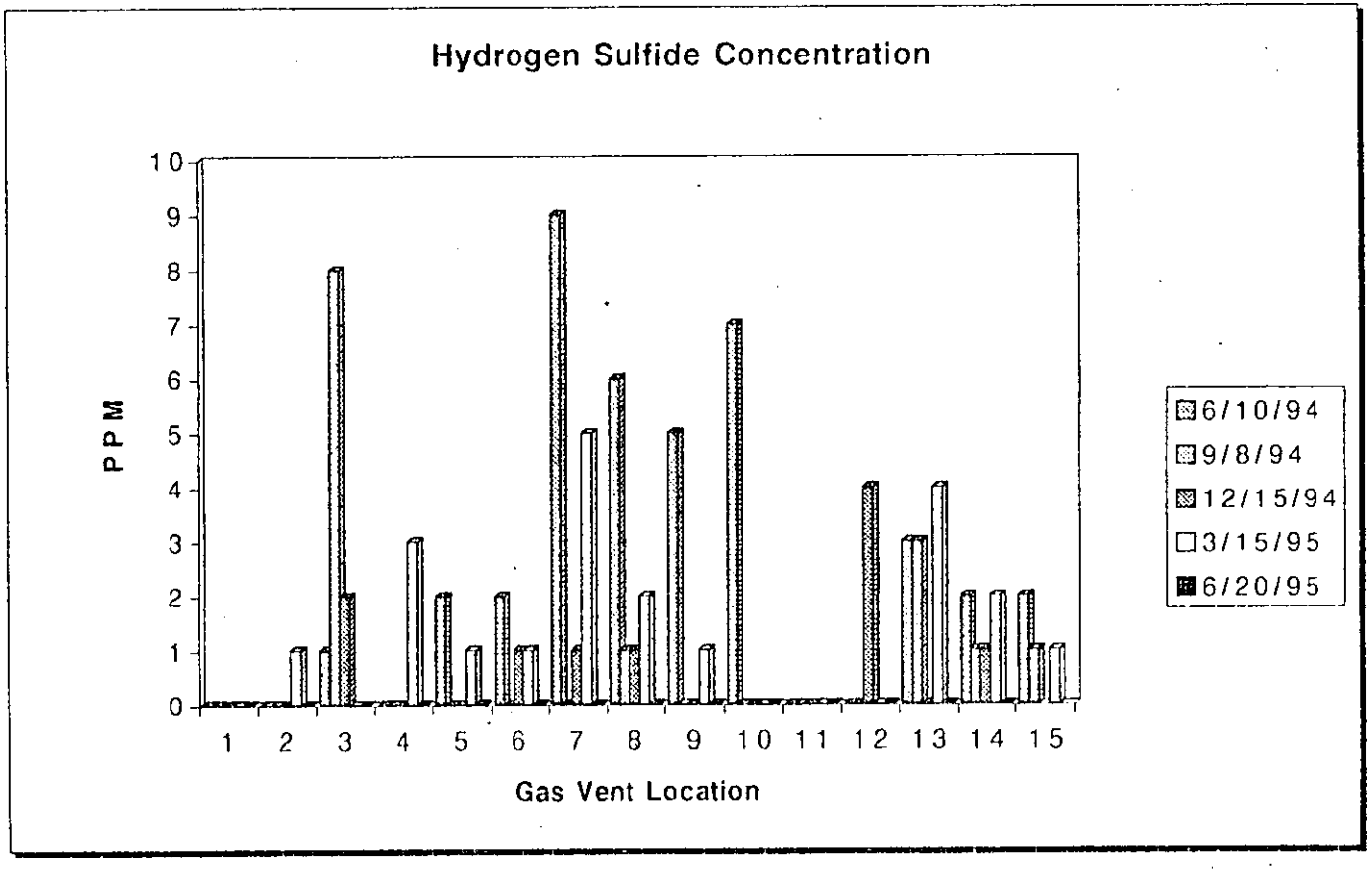
ND - None Detected

PREVIOUS MONITORING DATA

Monitoring Results for Hydrogen Sulfide (PPM)					
Gas Vent	6/10-11/94	9/8/94	12/15/94	3/15/95	6/20/95
1	ND	ND	ND	ND	ND
2	ND	ND	ND	1	ND
3	1	8	ND	ND	ND
4	ND	ND	2	3	ND
5	2	ND	ND	1	ND
6	2	ND	ND	1	ND
7	9	ND	1	5	ND
8	6	1	1	2	ND
9	5	ND	1	1	ND
10	7	ND	ND	ND	ND
11	ND	ND	ND	ND	ND
12	ND	ND	ND	ND	ND
13	3	3	4	4	ND
14	2	1	ND	2	ND
15	2	1	1	1	ND

ND - None Detected


Vinyl Chloride Concentration
PPM
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Gas Vent Location
6/10/94
9/8/94
12/15/94
3/15/95
6/20/95


Hydrogen Sulfide Concentration
PPM
10
9
8
7
6
5
4
3
2
1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Gas Vent Location
6/10/94
9/8/94
12/15/94
3/15/95
6/20/95

APPENDIX B

EQUIPMENT INFORMATION

Gas Sampling Worksheet

JOB NUMBER: E029408

Site Data

Site: Holden Landfill		Date:
Location: Holden, MA	Description: Gas Well Monitoring	
Client: M. Diamontopoulos / American Env. Labs		Phone: (508) 534-1444

Sampling Information

Sampled By: HEN			Calibration Data
Sampling Equipment: [illegible]			Method: ☒ Auto ☐ Manual
Temperature	Precipitation: Hazy	Trend: ☐ Wet ☒ Normal ☐ Dry	Calibration Date: [illegible]
Flow Rate			Calibrated By

Comments: SLIGHT BREEZE

Sampling Data

Well/Location	Start/Stop Time	Analyte 1 Vinyl Chloride	Analyte 2 Methane	Analyte 3 Hydrogen Sulfide	Analyte 4
1	8:20	1.0	2.4	ND	
2	[illegible]	1.2	2.6	ND	
3	[illegible]	1.6	[illegible]	[illegible]	
4	[illegible]	2.1	[illegible]	ND	
5	[illegible]	2.7	7.6	ND	
6	[illegible]	3.0	11	ND	
7	[illegible]	3.4	[illegible]	ND	
8	[illegible]	3.8	16	ND	
9	[illegible]	4.3	19	ND	
10	[illegible]	4.2	16	ND	
11	[illegible]	4.3	17	ND	

Site Data

Site: Holden Landfill	Date: 6-20-95
Location: Holden, MA	Description: Gas Well Monitoring
Analyte	

Sampling Data

Well/Location	Start/Stop Time	Analyte 1 Vinyl Chloride	Analyte 2 Methane	Analyte 3 Hydrogen Sulfide	Analyte 4
12	8:55	4.5	9:40 105	10:59 ND	
13	9:09	41.7	9:53 19	11:02 ND	
14	~~9:07~~ 9:05	~~50~~ 53	9:47 22	11:07 ND	
15	9:11	5.0	9:45 23	11:05 ND	

ATTACHMENT H

HOLDEN DUMP

GROUNDWATER AND SURFACE WATER SAMPLE ANALYTICAL RESULTS AMERICAN ENVIRONMENTAL LABORATORIES, INC.

Samples Collected June 1995

HED

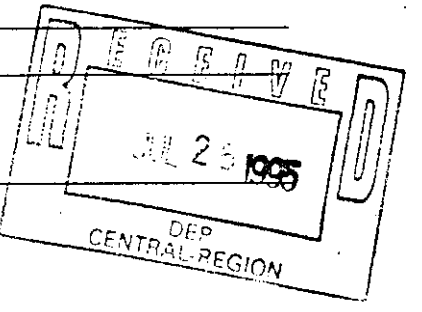
HOLDEN ENGINEERING DIVISION

HOLDEN ENGINEERING DIVISION
1196 MAIN STREET
HOLDEN, MA 01520

TRANSMITTAL SHEET

DATE: 7/25/95

TO: STEVE HALLEM
DEP
DIVISION OF SOLID WASTE MANAGEMENT
75 GROVE ST
WORCESTER, MA 01605



RE:

FROM: *John K. Westerling*
Holden Engineering Division
1196 Main Street
Holden, MA 01520

- ☐ FOR YOUR INFORMATION
- ☐ FOR YOUR REVIEW
- ☐ FOR YOUR COMMENT
- ☒ FOR YOUR USE
- ☐ PER YOUR REQUEST
- ☐ FOR YOUR SIGNATURE

ENCLOSED: - GROUNDWATER MONITORING REPORTS

COMMENTS:

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

HOLDEN LANDFILL - FIELD DATA

LOCATION	pH (s.u.)	TEMP (deg. C.)	SPEC. COND. (umhos/cm)	DEPTH OF WATER (feet)
SEA - 1A	5.25	12	400	14.60
SEA - 6	5.55	12	60	21.60
HDOW-3	5.90	12	800	9.80
HDOW-5	6.35	12	120	30.10
HDOW-6	6.05	11	20	12.33
HDOW-7A	6.00	12	30	11.25
HDOW-8	5.80	12	100	21.37
HDOW-9C	5.50	12	600	46.50
HDOW-10	5.50	11	120	45.60
HDOW-11B	5.70	11	100	32.45
HDOW-12	5.75	12	80	6.53
HDOW-13	6.00	13	320	9.40
POND SITE	6.35	19	200	N/A
LEACHATE	5.70	15	300	N/A
F&W BOD	N/R	N/R	N/R	N/R
UPSTREAM	6.50	18	100	N/A
DOWNSTREAM	6.55	19	120	N/A

N/R = NOT REQUESTED
N/A = NOT APPLICABLE
** VALUES FOR MONITORING WELLS OBTAINED AFTER PURGING WELLS

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

HOLDEN LANDFILL - FIELD DATA

LOCATION	pH (s.u.)	TEMP (deg. C.)	SPEC. COND. (umhos/cm)	DEPTH OF WATER (feet)
SEA - 1A	5.25	12	400	14.60
SEA - 6	5.55	12	60	21.60
HDOW-3	5.90	12	800	9.80
HDOW-5	6.35	12	120	30.10
HDOW-6	6.05	11	20	12.33
HDOW-7A	6.00	12	30	11.25
HDOW-8	5.80	12	100	21.37
HDOW-9C	5.50	12	600	46.50
HDOW-10	5.50	11	120	45.60
HDOW-11B	5.70	11	100	32.45
HDOW-12	5.75	12	80	6.53
HDOW-13	6.00	13	320	9.40
POND SITE	6.35	19	200	N/A
LEACHATE	5.70	15	300	N/A
F&W BOD	N/R	N/R	N/R	N/R
UPSTREAM	6.50	18	100	N/A
DOWNSTREAM	6.55	19	120	N/A

N/R = NOT REQUESTED
N/A = NOT APPLICABLE
** VALUES FOR MONITORING WELLS OBTAINED AFTER PURGING WELLS

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

60 Elm Hill Ave., Leominster, Massachusetts 01453
(508) 534-1444 • (800) 522-0094 • FAX (508) 537-6252

Date Received: WPC-DDC 2485-495 [illegible]

CHAIN OF CUSTODY

Page ____ of ____

Company Name	Purchase Order #	Project #	Project Name	Turn-Around Time
TOWN OF HOLDEN			[illegible] LANDFILL MONITORING	

Contact Person	Address	City	State	Zip	Telephone
JOHN WESSERLING	1196 MAIN ST.	HOLDEN	MA		829-0246

Analysis Required

Lab I.D. (For Lab Use Only)	Date	Time	COMP	GRAB	MATRIX	Station Location/Source of Sample	No. of Containers	Mn, Cr, Pb	Zn, Cd, Hg	Cu, As, Se	Ba, Ag, Fe	[illegible]	[illegible]	[illegible]	[illegible]	[illegible], SO4	BOD	[illegible]	[illegible]	[illegible]	8010	8020	PRESERVATIVE
485	6-29-95	10:00		✓	GW	MW - SEA 1A	8	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			AS
486	↓	10:30		✓	GW	MW - SEA 6	8	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			REQ'D
487		11:00		✓	GW	MW - HDOW 3	8	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			"
488		12:45		✓	GW	MW - HDOW 13	8	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			
489		1:30		✓	W	POND ON SITE	8	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			
490		1:00		✓	W	UPSTREAM	9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
491		11:30		✓	W	DOWNSTREAM	9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
492		12:15		✓	W	LEACHATE BREAKOUT	10	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
493	↓	11:45		✓	W	F+W BODs	1										✓						

Matrix: **DW** = Drinking Water **GW** = Ground Water **S** = Soil **O** = Oil **SL** = Sludge **WW** = Waste Water

Contamination Level L = Low (No Odor) M = Medium H = High U = Unknown

Special Remarks/Requests
1. PRESERVED AS REQUIRED (SEE CONTAINERS) 2. TOTAL METALS 3. SEE FIELD DATA SHEET pH, COND., TEMP, H_2O Level

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature) Christopher Duncan	Date/Time 6/[illegible]

Sampler's Signature: [signature]

Sampler Type:

Turn-Around-Time (TAT) Surcharges

Normal (7-10 Working Days) = 0%

6 Working Days = 10%	3 Working Days = 75%
5 Working Days = 25%	48 Hours = 100%
4 Working Days = 50%	24 Hours = 150%

- TAT begins when sample is received at test facility
- TAT for samples received after 3 p.m. will begin on the next business day
- All TAT's are subject to laboratory approval and customer consent

Lab reserves the right to return unused samples to client.

Please call to verify RUSH turn-around times.

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63485

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-SEA 1A / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	2.43	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.008	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.015	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.016	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.018	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.062	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	7.16	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SP)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63486

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-SEA 6 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.265	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.040	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.015	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.019	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.088	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.088	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	6.06	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63487

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-HDOW 3 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.706	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.006	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	ND	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.011	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.012	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.157	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	1.05	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63488

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-HDOW 13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	9.13	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	ND	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	ND	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	ND	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.534	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.031	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	13.2	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63489

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED : 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Pond

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Pond / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.281	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.413	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	ND	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.080	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	ND	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.015	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	0.434	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: ( )
REVIEWED BY: ( )

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Please Recycle

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MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63490

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Upstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.904	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	ND	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	ND	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	ND	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	ND	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.019	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	0.169	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SR)
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Mensure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63491

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Down Stream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.058	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	ND	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	ND	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	ND	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	ND	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.014	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	0.242	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: ( )
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63492

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	2.09	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.010	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	ND	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.012	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	29.7	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.055	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.063	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	11.8	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SR)
REVIEWED BY: ( )

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Please Recycle

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MDL - Method Detection Limit
ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63485

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-SEA 1A / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

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PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	107%
Toluene D-8	94%
4-Bromofluorobenzene	100%

ANALYZED BY: (TAF)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63486

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-SEA 6 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	111%
Toluene D-8	92%
4-Bromofluorobenzene	96%

ANALYZED BY: ( )
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63487

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-HDOW 3 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	115%
Toluene D-8	96%
4-Bromofluorobenzene	89%

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax:(508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63488

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-HDOW 13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	101%
Toluene D-8	97%
4-Bromofluorobenzene	92%

ANALYZED BY: ( )
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63489

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Pond

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Pond / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

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PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	107%
Toluene D-8	96%
4-Bromofluorobenzene	114%

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63490

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Upstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	103%
Toluene D-8	99%
4-Bromofluorobenzene	100%

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63491

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Down Stream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL
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PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	97%
Toluene D-8	99%
4-Bromofluorobenzene	91%

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63492

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	06/30/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	06/30/95	5.0	EPA # 8240
Acetone	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	06/30/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	06/30/95	5.0	EPA # 8240
Chloroform	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	06/30/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
Toluene	ND	UG/L	06/30/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	06/30/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	06/30/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	06/30/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	06/30/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	06/30/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	06/30/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	06/30/95	5.0	EPA # 8240
Styrene	ND	UG/L	06/30/95	5.0	EPA # 8240
Bromoform	ND	UG/L	06/30/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	06/30/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	06/30/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	117%
Toluene D-8	102%
4-Bromofluorobenzene	118%

ANALYZED BY: ( )
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63485

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-SEA 1A / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	187	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	55.0	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	50.7	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: (SR)
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63486

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-SEA 6 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	16.9	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	6.5	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	19.0	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63487

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-HDOW 3 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	70.8	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	100	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	15.4	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63488

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: MW-HDOW 13 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	159	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	24.0	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	15.4	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63489

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Pond

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Pond / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	4.63	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	14.0	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	38.9	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

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MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63490

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Upstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	17.1	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	27.0	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	ND	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63491

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Down Stream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	25.4	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	26.0	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	7.90	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: (SR)
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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Please Recycle

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MDL - Method Detection Limit

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63492

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	97.5	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	20.0	MG/L	07/10/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	7.90	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/07/95	0.01	EPA # 335.2

ANALYZED BY: (SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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MDL - Method Detection Limit

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63490

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Upstream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
BOD-5	4.0	MG/L	06/30/95	1.0	SM # 507

ANALYZED BY: ( )
REVIEWED BY: ( )

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63491

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Stream

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Down Stream / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
BOD-5	2.5	MG/L	06/30/95	1.0	SM # 507

ANALYZED BY: SR)
REVIEWED BY: ( )

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MDL - Method Detection Limit

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
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- LAB ID # : MA076 -

REPORT NUMBER: AA63493

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: F & W / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
BOD-5	3.0	MG/L	06/30/95	1.0	SM # 507

ANALYZED BY: (SR)
REVIEWED BY: ( )

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MDL - Method Detection Limit

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
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- LAB ID # : MA076 -

REPORT NUMBER: AA63492

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
N-Nitrosodimethylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Picoline	ND	UG/L	07/07/95	5.0	EPA# 8270
Ethyl methanesulfonate	ND	UG/L	07/07/95	5.0	EPA# 8270
Methyl methanesulfonate	ND	UG/L	07/07/95	5.0	EPA# 8270
Phenol	ND	UG/L	07/07/95	5.0	EPA# 8270
Bis(2-chloroethyl)ether	ND	UG/L	07/07/95	5.0	EPA# 8270
Aniline	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Chlorophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
1,3-Dichlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
1,4-Dichlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzyl Alcohol	ND	UG/L	07/07/95	5.0	EPA# 8270
1,2-Dichlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
Total Cresols	ND	UG/L	07/07/95	5.0	EPA# 8270
Bis(2-chloroisopropyl)ether	ND	UG/L	07/07/95	5.0	EPA# 8270
Acetophenone	ND	UG/L	07/07/95	5.0	EPA# 8270
N-Nitrosodi-n-propylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
Hexachloroethane	ND	UG/L	07/07/95	5.0	EPA# 8270
Nitrobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
N-Nitrosopiperidine	ND	UG/L	07/07/95	5.0	EPA# 8270
Isophorone	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Nitrophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
2,4-Dimethylphenol	ND	UG/L	07/07/95	5.0	EPA# 8270
Bis(2-Chloroethoxy)methane	ND	UG/L	07/07/95	5.0	EPA# 8270
2,4-Dichlorophenol	ND	UG/L	07/07/95	20.0	EPA# 8270
a,a-Dimethylphenethylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
1,2,4-Trichlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
Naphthalene	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Chloroaniline	ND	UG/L	07/07/95	5.0	EPA# 8270
Hexachlorobutadiene	ND	UG/L	07/07/95	5.0	EPA# 8270
N-nitrosodi-n-butylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Chloro-3-methylphenol	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Methylnaphthalene	ND	UG/L	07/07/95	5.0	EPA# 8270
1,2,4,5-Tetrachlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
Hexachlorocyclopentadiene	ND	UG/L	07/07/95	5.0	EPA# 8270

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AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
2,4,6-Trichlorophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
2,4,5-Trichlorophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Chloronapthalene	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Nitroaniline	ND	UG/L	07/07/95	5.0	EPA# 8270
Dimethylphthalate	ND	UG/L	07/07/95	5.0	EPA# 8270
Acenaphthylene	ND	UG/L	07/07/95	5.0	EPA# 8270
2,6-Dinitrotoluene	ND	UG/L	07/07/95	5.0	EPA# 8270
3-Nitroaniline	ND	UG/L	07/07/95	5.0	EPA# 8270
Acenaphthene	ND	UG/L	07/07/95	5.0	EPA# 8270
2,4-Dinitrophenol	ND	UG/L	07/07/95	20.0	EPA# 8270
Dibenzofuran	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Nitrophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
Pentachlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
2,4-Dinitrotoluene	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Naphthylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
2,3,4,6-Tetrachlorophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
1-Naphthylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
Diethylphthalate	ND	UG/L	07/07/95	5.0	EPA# 8270
Fluorene	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Chlorophenyl-phenyl ether	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Nitroaniline	ND	UG/L	07/07/95	5.0	EPA# 8270
2-Methyl-4,6-Dinitrophenol	ND	UG/L	07/07/95	20.0	EPA# 8270
N-Nitrosodiphenylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
Diphenylamine	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Bromophenyl-phenyl ether	ND	UG/L	07/07/95	5.0	EPA# 8270
Phenacetin	ND	UG/L	07/07/95	5.0	EPA# 8270
Alpha-BHC	ND	UG/L	07/07/95	5.0	EPA# 8270
Hexachlorobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
4-Aminobiphenyl	ND	UG/L	07/07/95	5.0	EPA# 8270
Beta-BHC	ND	UG/L	07/07/95	5.0	EPA# 8270
Pentachlorophenol	ND	UG/L	07/07/95	5.0	EPA# 8270
Gamma-BHC	ND	UG/L	07/07/95	5.0	EPA# 8270
Pronamide	ND	UG/L	07/07/95	5.0	EPA# 8270
Pentachloronitrobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
Phenanthrene	ND	UG/L	07/07/95	5.0	EPA# 8270
Anthracene	ND	UG/L	07/07/95	5.0	EPA# 8270
Delta-BHC	ND	UG/L	07/07/95	5.0	EPA# 8270
Heptachlor	ND	UG/L	07/07/95	5.0	EPA# 8270
Di-n-butylphthalate	ND	UG/L	07/07/95	5.0	EPA# 8270
Aldrin	ND	UG/L	07/07/95	5.0	EPA# 8270
Heptachlor Epoxide	ND	UG/L	07/07/95	5.0	EPA# 8270
Fluoranthene	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzidine	ND	UG/L	07/07/95	5.0	EPA# 8270
Pyrene	ND	UG/L	07/07/95	5.0	EPA# 8270
Endosulfan I	ND	UG/L	07/07/95	5.0	EPA# 8270
4,4'-DDE	ND	UG/L	07/07/95	5.0	EPA# 8270
Endrin	ND	UG/L	07/07/95	5.0	EPA# 8270
Dieldrin	ND	UG/L	07/07/95	5.0	EPA# 8270
p-Dimethylaminoazobenzene	ND	UG/L	07/07/95	5.0	EPA# 8270
Endosulfan II	ND	UG/L	07/07/95	5.0	EPA# 8270

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

REPORT NUMBER: AA63492

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
4,4'-DDD	ND	UG/L	07/07/95	5.0	EPA# 8270
Endrin Aldehyde	ND	UG/L	07/07/95	5.0	EPA# 8270
Butylbenzyl phthalate	ND	UG/L	07/07/95	5.0	EPA# 8270
4,4'-DDT	ND	UG/L	07/07/95	5.0	EPA# 8270
Endosulfan Sulfate	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzo(a)anthracene	ND	UG/L	07/07/95	5.0	EPA# 8270
Methoxychlor	ND	UG/L	07/07/95	5.0	EPA# 8270
3,3'-Dichlorobenzidine	ND	UG/L	07/07/95	5.0	EPA# 8270
Chrysene	ND	UG/L	07/07/95	5.0	EPA# 8270
Bis(2-ethylhexyl)phthalate	ND	UG/L	07/07/95	5.0	EPA# 8270
7,12-Dimethylbenz(a)anthracene	ND	UG/L	07/07/95	5.0	EPA# 8270
Di-n-octylphthalate	ND	UG/L	07/07/95	5.0	EPA# 8270
3-Methylcholanthrene	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzo(b)fluoroanthene	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzo(k)fluoroanthene	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzo(a)pyrene	ND	UG/L	07/07/95	5.0	EPA# 8270
Indeno(1,2,3,cd)pyrene	ND	UG/L	07/07/95	5.0	EPA# 8270
Dibenz(a,h)anthracene	ND	UG/L	07/07/95	5.0	EPA# 8270
Benzo(g,h,i)perylene	ND	UG/L	07/07/95	5.0	EPA# 8270
Chlordane	ND	UG/L	07/07/95	5.0	EPA# 8270
Toxaphene	ND	UG/L	07/07/95	1000.0	EPA# 8270
PCB 1016	ND	UG/L	07/07/95	100.0	EPA# 8270
PCB 1221	ND	UG/L	07/07/95	100.0	EPA# 8270
PCB 1232	ND	UG/L	07/07/95	100.0	EPA# 8270
PCB 1242	ND	UG/L	07/07/95	100.0	EPA# 8270
PCB 1248	ND	UG/L	07/07/95	100.0	EPA# 8270
PCB 1254	ND	UG/L	07/07/95	100.0	EPA# 8270
PCB 1260	ND	UG/L	07/07/95	100.0	EPA# 8270

DILUTION FACTOR: 1 TIME

PERCENT RECOVERY:

2-Fluorophenol	1.6%
Phenol D-6	7.8%
Nitrobenzene D-5	31%
2-Fluorobiphenyl	28%
2,4,6-Tribromophenol	17%
P-Terphenyl D-14	39%

ANALYZED BY: ( )
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63492

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/29/95
COLLECTED BY : AEL - EL
MATRIX : Water

PO/ID NUMBER : AA63485

SAMPLE DESCRIPTION: Leachate Breakout / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
a-BHC	ND	UG/L	07/10/95	0.022	EPA # 8080
y-BHC (Lindane)	ND	UG/L	07/10/95	0.016	EPA # 8080
b-BHC	ND	UG/L	07/10/95	0.024	EPA # 8080
Heptachlor	ND	UG/L	07/10/95	0.007	EPA # 8080
d-BHC	ND	UG/L	07/10/95	0.021	EPA # 8080
Aldrin	ND	UG/L	07/10/95	0.007	EPA # 8080
Heptachlor Epoxide	ND	UG/L	07/10/95	0.007	EPA # 8080
Endosulfan I	ND	UG/L	07/10/95	0.011	EPA # 8080
4,4-DDE	ND	UG/L	07/10/95	0.021	EPA # 8080
Dieldrin	ND	UG/L	07/10/95	0.007	EPA # 8080
Endrin	ND	UG/L	07/10/95	0.008	EPA # 8080
4,4-DDD	ND	UG/L	07/10/95	0.006	EPA # 8080
4,4-DDT	ND	UG/L	07/10/95	0.010	EPA # 8080
Endosulfan II	ND	UG/L	07/10/95	0.010	EPA # 8080
Endrin Aldehyde	ND	UG/L	07/10/95	0.043	EPA # 8080
Endosulfan Sulfate	ND	UG/L	07/10/95	0.110	EPA # 8080
Methoxychlor	ND	UG/L	07/10/95	0.015	EPA # 8080
Chlordane	ND	UG/L	07/10/95	0.4	EPA # 8080
Toxaphene	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1016	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1221	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1232	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1242	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1248	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1254	ND	UG/L	07/10/95	0.4	EPA # 8080
PCB 1260	ND	UG/L	07/10/95	0.15	EPA # 8080

DILUTION FACTOR: 1 TIME

PERCENT SURROGATE RECOVERY:

DBC	98%

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

REPORT NUMBER: AA63492

ANALYZED BY: ( )
REVIEWED BY: ( )

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MDL - Method Detection Limit

ND - Not Detected
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AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED
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Date Received: 6/30 - Date Report

CHAIN OF CUSTODY

Page ____ of ____

Company Name	Purchase Order #	Project #	Project Name	Turn-Around Time
TIGHE & BOND				

Contact Person	Address		
JOHN WESTERLING	1116 MAIN ST.		
City	**State**	**Zip**	**Telephone**
HOLDEN	MA		829-0104

Lab I.D. (For Lab Use Only)	Date	Time	COMP	GRAB	MATRIX	Station Location/Source of Sample	No. of Containers	Analysis Required	PRESERVATIVE
23530	6-30-95	10:00		✓	GW	MW - HDOW 5	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	HCl
531		10:30		✓	GW	MW - HDOW 6	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	None
532		11:10		✓	GW	MW - HDOW 7A	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	
533		11:45		✓	GW	MW - HDOW 8	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	
534		12:15		✓	GW	MW - HDOW 9C	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	
535		12:50		✓	GW	MW - HDOW 10	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	
536		1:30		✓	GW	MW - HDOW 11B	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	
537	↓	2:15		✓	GW	MW - HDOW 12	8	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	

Matrix: **DW** = Drinking Water **GW** = Ground Water **S** = Soil **O** = Oil **SL** = Sludge **WW** = Waste Water

Contamination Level **L** = Low (No Odor) **M** = Medium **H** = High **U** = Unknown

Special Remarks/Requests: PRESERVED AS REQUIRED 2. TOTAL 3. DEFIELD DATA SHEETS
(SEE CONTAINERS) METALS W/ FIELD TEMP, PH LEVELS

Sampler's Signature: SAM TOMASELLO

Sampler Type:

Turn-Around-Time (TAT) Surcharges

Normal (7-10 Working Days) = 0%
6 Working Days = 10% 3 Working Days = 75%
5 Working Days = 25% 48 Hours = 100%
4 Working Days = 50% 24 Hours = 150%

- TAT begins when sample is received at test facility
- TAT for samples received after 3 p.m. will begin on the next business day
- All TAT's are subject to laboratory approval and customer consent

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
SAM TOMASELLO	6/30/95		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
		CRYSTAL CHEMICAL	6-30-95

ab reserves the right to return unused samples to client.

Please call to verify RUSH turn-around times.

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63530

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 5 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	3.40	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.214	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.239	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.458	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	0.020	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.175	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.615	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.959	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	139	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: SR
REVIEWED BY:

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63531

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 6 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.453	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.043	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.046	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.072	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.020	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.097	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.170	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	20.9	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax:(508) 537-6252

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MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63532

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 7A / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	2.21	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.142	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.140	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.312	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	0.013	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.104	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.335	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.619	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	107	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63533

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 8 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	2.96	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.339	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.332	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.385	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	0.018	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.254	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	1.21	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	1.04	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	123	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: SR
REVIEWED BY:

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63534

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 9C / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	4.74	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.060	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.240	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.109	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	0.034	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.032	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.593	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.536	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	208.0	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY:)
REVIEWED BY:)

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63535

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 10 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	0.559	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.054	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.067	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.115	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.058	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.162	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.314	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	37.5	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63536

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED : 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 11B / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	2.39	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.032	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.029	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.174	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	ND	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.011	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.316	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.072	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	24.6	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

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UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63537

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 12 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
MANGANESE	1.96	MG/L	07/07/95	0.003	EPA # 200.7
COPPER	0.154	MG/L	07/07/95	0.006	EPA # 200.7
LEAD	0.128	MG/L	07/07/95	0.0005	EPA # 239.2
ZINC	0.242	MG/L	07/07/95	0.003	EPA # 200.7
CADMIUM	0.012	MG/L	07/07/95	0.006	EPA # 200.7
MERCURY	ND	MG/L	06/30/95	0.0002	EPA # 245.1
CHROMIUM	0.155	MG/L	07/07/95	0.006	EPA # 200.7
ARSENIC	0.484	MG/L	07/07/95	0.0002	EPA # 206.2
SELENIUM	ND	MG/L	07/06/95	0.0005	EPA # 270.2
BARIUM	0.424	MG/L	07/07/95	0.001	EPA # 200.7
SILVER	ND	MG/L	07/06/95	0.003	EPA # 200.7
IRON	94.4	MG/L	07/06/95	0.003	EPA # 200.7

METHOD OF EXTRACTION: EPA #3010

ANALYZED BY: (SP)
REVIEWED BY:

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit
ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63530

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 5 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	101%
Toluene D-8	107%
4-Bromofluorobenzene	93%

ANALYZED BY: (TAT)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63531

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 6 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	106%
Toluene D-8	105%
4-Bromofluorobenzene	105%

ANALYZED BY: ( )
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63532

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 7A / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

REPORT NUMBER: AA63532

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	106%
Toluene D-8	105%
4-Bromofluorobenzene	105%

ANALYZED BY: ( )
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63533

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 8 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

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PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	102%
Toluene D-8	104%
4-Bromofluorobenzene	102%

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63534

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 9C / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	109%
Toluene D-8	105%
4-Bromofluorobenzene	114%

ANALYZED BY: (TAT)
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63535

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 10 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

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LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	115%
Toluene D-8	104%
4-Bromofluorobenzene	108%

ANALYZED BY: (PAT)
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63536

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 11B / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

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AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	108%
Toluene D-8	103%
4-Bromofluorobenzene	104%

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63537

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 12 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
Acrolein	ND	UG/L	07/10/95	5.0	EPA # 8240
Acrylonitrile	ND	UG/L	07/10/95	5.0	EPA # 8240
Acetone	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1, Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Iodomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Disulfide	ND	UG/L	07/10/95	5.0	EPA # 8240
Methylene Chloride	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,2-Dichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Vinyl Acetate	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Butanone (MEK)	ND	UG/L	07/10/95	5.0	EPA # 8240
Chloroform	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,1, Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Carbon Tetrachloride	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trichloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2 Dichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromodichloromethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Chloroethylvinyl Ether	ND	UG/L	07/10/95	5.0	EPA # 8240
4-Methyl-2-Pentanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Cis-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
Toluene	ND	UG/L	07/10/95	5.0	EPA # 8240
Trans-1,3-Dichloropropene	ND	UG/L	07/10/95	5.0	EPA # 8240
1,1,2-Trichloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
2-Hexanone	ND	UG/L	07/10/95	5.0	EPA # 8240
Tetrachloroethene	ND	UG/L	07/10/95	5.0	EPA # 8240
Dibromomethane	ND	UG/L	07/10/95	5.0	EPA # 8240
Chlorobenzene	ND	UG/L	07/10/95	5.0	EPA # 8240
Ethyl Benzene	ND	UG/L	07/10/95	5.0	EPA # 8240
M&P-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
O-Xylene	ND	UG/L	07/10/95	5.0	EPA # 8240
Styrene	ND	UG/L	07/10/95	5.0	EPA # 8240
Bromoform	ND	UG/L	07/10/95	5.0	EPA # 8240

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AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
1,1,2,2-Tetrachloroethane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,2,3 Trichloropropane	ND	UG/L	07/10/95	5.0	EPA # 8240
1,4 Dichloro-2-Butene	ND	UG/L	07/10/95	5.0	EPA # 8240

DILUTION FACTOR: NONE

PERCENT SURROGATE RECOVERY:

1,2-Dichloroethane D-4	110%
Toluene D-8	105%
4-Bromofluorobenzene	110%

ANALYZED BY: ( )
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL
LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63530

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 5 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	82.2	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	ND	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	ND	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: (SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63531

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 6 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	31.1	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	ND	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	ND	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63532

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 7A / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	140	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	ND	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	7.90	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63533

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 8 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	207	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	ND	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	15.4	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63534

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 9C / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	182	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	3.68	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	41.9	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63535

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 10 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	104	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	14.2	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	ND	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: (SR)
REVIEWED BY: ( )

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Please Recycle

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63536

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 11B / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	48.6	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	2.95	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	11.7	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: ( )
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
(508) 534-1444 • 1 (800) 522-0094 • Fax: (508) 537-6252

* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

REPORT NUMBER: AA63537

TO: Town of Holden
ATTN: John Westerling
1204 Main St.
Holden, MA 01520

DATE RECEIVED : 06/30/95
DATE COLLECTED 06/30/95
COLLECTED BY : AEL - EL
MATRIX : Grndwater

PO/ID NUMBER : AA63530

SAMPLE DESCRIPTION: MW HDOW 12 / River St. Landfill

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
HARDNESS	154	MG/L	07/05/95	1.0	SM # 314B
CHLORIDE	2.16	MG/L	07/05/95	1.0	SM # 407C
CHEMICAL OXYGEN DEMAND	11.7	MG/L	07/07/95	1.0	SM # 508
TOTAL CYANIDE	ND	MG/L	07/11/95	0.01	EPA # 335.2

ANALYZED BY: (SR)
REVIEWED BY: ( )

60 Elm Hill Avenue, Leominster, Massachusetts 01453
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* - Exceeds EPA Guidelines
MDL - Method Detection Limit

ND - Not Detected
UOM - Unit of Measure

ATTACHMENT I

HOLDEN DUMP

GROUNDWATER AND SURFACE WATER SAMPLE ANALYTICAL RESULTS NUS/FIT

Samples Collected March and June 1983

PARAMETERS	(T/W-1)			(T/W-2)					(T/W-3)				(T/W-4)		(T/W-5)					(T/W-6)			
	1/81	3/83	6/83	1/81	7/81	11/81	3/83	6/83	1/81	7/81	3/83	6/83	1/81	7/81	1/81	7/81	11/81	3/83	6/83	1/81	7/81	3/83	6/83
acrolein																							
acrylonitrile																							
benzene	12	8.7	6	12	9	2.3	16	8	10	9	9	5	8	3	20	1	16	15	5	7	6	6.2	5
carbon tetrachloride																							8
chlorobenzene			5																				5
1,2-dichloroethane																							
1,1,1-trichloroethane	298																	10		15	1	62	55
1,1-dichloroethane	159		5					5				5	5	3	12		8.4	16	5	9	4	29	18
1,1,2-trichloroethane																							
1,1,2,2-tetrachloroethane																							10
chloroethane	T																	16				6	
2-chloroethylvinyl ether																							
chloroform																							
1,1-dichlorethene	11																						5
trans-1,2-dichloroethene	34	10	10	42	25	17	26	22	40	6	14	13	15	16	16		3.4	4.6	5	108	22	14	13
1,2-dichloropropane																							
trans-1,3-dichloropropene																							
cis-1,3-dichloropropene																							
ethylbenzene	18	8.5	9	17	8	16	22	18	13	13	5.9	5	12	1	35	30	25	35	17	2	7	7	5
methylene chloride							T				T	5				1			5				
chloromethane																							
bromomethane																							
bromoform																							
bromodichloromethane																							
fluorotrichloromethane																							10
dichlorodifluoromethane																							
chlorodibromomethane																							
tetrachloroethane																							5
toluene	114			85	67	61	18	11	102	62	7.8		4	2	120	60	98	90		17	12	6.1	
trichloroethene																							
vinyl chloride		13	30		100	190	120	262		18	32	71		34		58	250	39	28		21	65	50
acetone			19					17			110	12							9				
2-butanone																							
carbondisulfide																							
2-hexanone																							
4-methyl-2-pentanone																							
styrene																							
vinyl acetate																							
o-xylene		T	5		50	30		8		26	6.1			3		110	50	47	15		17	8.2	5
dioxane																138							

ORGANIC ANALYSES, DEQE OBSERVATION WELLS

NOTES:

Results reported in parts per billion (ppb). Blanks represent "not detected".

Sampling locations presented in Figure 2.

DRAFT

PARAMETERS	1	2	3	4	5	6	7A	7B	8	9A	HDOW- 9B	HDOW- 9B (dup1)	HDOW- 9C	10	10 (dup1)	11A	11B	12	13	14
acrolein																				
acrylonitrile																				
benzene		5										68							5	5
carbon tetrachloride																				
chlorobenzene	5																5			
1,2-dichloroethane																				
1,1,1-trichloroethane												7	1140			5	45	8	63	43
1,1-dichloroethane											190	204	270			5	5	5	13	9
1,1,2-trichloroethane																				
1,1,2,2-tetrachloroethane											10		10				10			
chloroethane																				
2-chloroethylvinyl ether																				
chloroform																				
1,1-dichlorethene													5							
trans-1,2-dichloroethene									7		54	50				17	6	7	9	6
1,2-dichloropropane												5								
trans-1,3-dichloropropene																				
cis-1,3-dichloropropene																				
ethylbenzene											5	22	5				5		5	
methylene chloride			5	14	6	28	5			5			866							
chloromethane																				
bromomethane																				
bromoform																				
bromodichloromethane																				
fluorotrichloromethane																			10	
dichlorodifluoromethane																				
chlorodibromomethane																				
tetrachloroethane												7	5				5			
toluene											226	232	110							
trichloroethene												26								
vinyl chloride									13							29		21	202	
acetone	5							5	5	18	3830	3890				6	10			
2-butanone												7600								
carbondisulfide																				
2-hexanone												43								
4-methyl-2-pentanone											458	483	5							
styrene			5								5						5			
vinyl acetate																				
o-xylene	5		5								5	22	5				5		10	
dioxane																				

ORGANIC ANALYSES, NUS OBSERVATION WELLS

NOTES:

Results presented in parts per billion. Blanks represent "not detected".

Samples obtained between June 20 and 24, 1983.

Locations presented in Figure 2.

PARAMETERS	UNNAMED POND						QUINAPOXET RIVER									UNNAMED STREAM WETLAND & I-190 DRAINAGE						GROUNDWATER SEEP						
	(L005)*		(PND-1)		(PND-2)		(501)*	(502)*	(QR-1)	(QR-1A)	(QR-2)		(QR-3)	(QR-4)		(UST)		(WLD-2)	(WLD-1)	(HWY)		(SP-1)				(SP-2)		(River/Seep)**
	7/81	3/83	6/83	3/83	6/83		7/81	7/81	3/83	6/83	3/83	6/83	3/83	3/83		3/83	6/83	3/83	6/83	6/83		1/81	7/81	3/83	6/83	3/83		3/80
acrolein																												
acrylonitrile																												
benzene																						5		11	5			4
carbon tetrachloride																												
chlorobenzene																												
1,2-dichloroethane																												
1,1,1-trichloroethane																						330	65	150	531	55		600
1,1-dichloroethane																						480	59	72	39	22		100
1,1,2-trichloroethane																												
1,1,2,2-tetrachloroethane																												
chloroethane																								39	46	6.6		
2-chloroethylvinyl ether																												
chloroform																												
1,1-dichloroethene																						24			5			10
trans-1,2-dichloroethene																						75	16	24	5			20
1,2-dichloropropane																												
trans-1,3-dichloropropene																												
cis-1,3-dichloropropene																												
ethylbenzene																						2	3	14	5			3
methylene chloride													T	T										5				
chloromethane																												
bromomethane																												
bromoform																												
bromodichloromethane																												
fluorotrichloromethane													5												10			
dichlorodifluoromethane																												
chlorodibromomethane																												
tetrachloroethane																									5			2
toluene																						115	11	31		6.7		30
trichloroethene																									5			1
vinyl chloride																								50				
acetone																100								49		110		
2-butanone																						T						
carbondisulfide																												
2-hexanone																T												
4-methyl-2-pentanone																									5			
styrene																												
vinyl acetate																												
o-xylene																							8	21	5			
dioxane																												

ORGANIC ANALYSES, SURFACE WATERS

NOTES:

* Exact location not specified.

** Location reported to be in the Quinapoxet River near the confluence with the groundwater seep.

Results presented in parts per billion (ppb). Blank spaces represent "not detected".

T Trace

	PND-1	PND-2	SP-1	SP-2	QR-1	QR-2	QR-3	QR-4	UST	WLD-2	T/W-1	T/W-2	T/W-3	T/W-5	T/W-6
Aluminum				390							34,000	4,400	860	10,000	16,000
Chromium											90			37	66
Barium			250	590							420	220	325	260	190
Beryllium															
Cobalt				220										45	160
Copper	58		61								210	100	99	130	160
Iron	440	330	130,000	550,000	190				56	110	196,000	100,000	86,000	140,000	198,000
Nickel											79			88	93
Manganese	83	37	3,500	13,000	35	150	40	30	45	58	4,700	2,400	3,100	4,000	12,000
Zinc	15	32,000		84	35	14			20	14	41,000	10,000	2,400	10,000	32,000
Boron	115		360	1,400							400	350	400	1,000	870
Vanadium															
Silver															
Sodium	2.3	2.1	142	85	7.5	8.0	8.7	8.5	12.3	15	76	71	79	199	70
Arsenic			1,400	5,600							1,800	2,400	110	1,800	4,000
Antimony															
Selenium			3.2										2.6		
Thallium			24	28							23	18	13	15	21
Mercury															
Tin															
Cadmium											6.8	1.4	2.1	1.7	1.2
Lead	5.6	6.5	5.4	14							230	50	61	110	180
TDS	NA	NA	NA	720	64	39	37	53	67	71	2,300	1,300	890	930	1,700
COD	NA	NA	NA	115	14	7.0	15	20	8.2	11	77	60	81	128	75
Chloride	NA	NA	NA	120	12	12	10	12	22	24	85	92	98	270	74
Alkalinity	NA	NA	NA	370	22	11	11	9.2	13	1.8	540	500	520	530	360

NOTES:

- Results represent "total" analyses done on unfiltered samples.
- Blanks indicate "not detected".
- Samples were obtained between March 8 and 10, 1983.
- Results for Sodium, TDS, COD, Chloride, and Alkalinity are parts per million, all other results are parts per billion.

	HDOW-1	HDOW-2	(dup1) HDOW-2	HDOW-3	HDOW-4	HDOW-5	HDOW-6	HDOW-7A	HDOW-7B	(dup1) HDOW-7B	HDOW-8	(dup1) HDOW-8
Aluminum	49,200	23,900	15,000	231,000	124,000	275,000	135,000	78,300	12,400	11,000	367,000	10,800
Chromium	78	38	27	297	190	489	231	128	28	14	775	27
Barium	350	178	116	1,810	737	2,330	693	629			2,650	103
Beryllium		10		26	12	28	9	11			41	
Cobalt		67		239	63	305	104	57			269	
Copper	127	146	64	385	207	545	235	121	82		829	
Iron	59,400	45,700	13,600	258,000	116,000	366,000	135,000	95,200	14,000	12,000	414,000	24,600
Nickel	53	77		297	127	501	150	120			646	
Manganese	1,980	3,690	3,370	6,930	2,270	8,040	3,250	1,680	660	586	8,460	2,970
Zinc	325	271	136	1,030	510	1,240	740	404	177	91	1,150	109
Boron		102	181									
Vanadium				470		581	227					
Silver												
Sodium	16.3	15.0	11.5	34.0	8.1	11.9	7.4	12.1	3.8	3.1	22.1	25.2
Arsenic	41	110	64	760	80	630	94	34	11	2	400	80
Antimony				30	32	23	21					
Selenium												
Thallium												
Mercury				0.4	1.3		0.4		0.2		0.4	
Tin											30	
Cadmium		4	2.2	1.7		2.8					3.3	1.7
Lead	67	84	22	270	73	380	91	68	15	15	520	18

NOTES:

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	HDOW-9A	HDOW-9B	(dupl) HDOW-9B	HDOW-9C	HDOW-10	(dupl) HDOW-10	HDOW-11A	HDOW-11B	HDOW-12	HDOW-13	HDOW-14
Aluminum	185,000	47,700	21,400	46,700	49,000	47,100	158,000	22,800	396,000	181,000	59,300
Chromium	428	104	57	42	106	100	218	41	711	335	142
Barium	1,420	1,380	1,220	763	331	317	1,180	165	2,420	1,180	316
Beryllium	19	7					26	8	48	18	13
Cobalt	146	128	107	147			191		250	137	65
Copper	300	127	100	105	144	137	529	79	1,060	244	168
Iron	275,000	662,000	631,000	635,000	58,800	56,600	214,000	25,300	670,000	273,000	253,000
Nickel	311	97	79	63	58	61	352		548	256	148
Manganese	3,890	16,500	16,500	23,900	911	849	7,900	3,700	9,290	16,500	1,580
Zinc	1,030	334	475	262	511	409	916	182	1,430	675	353
Boron		484	486	309			209		107	278	
Vanadium	481						274		1,010	426	
Silver											
Sodium	24.4	NA	308	147	6.5	6.2	40.6	9.7	23.4	88.5	18.6
Arsenic	84	900	900	280	39	42	1,000	28	210	1,100	600
Antimony											
Selenium											
Thallium											
Mercury											
Tin			47					0.3			
Cadmium	1.9	1.5	1.5					44			38
Lead	260	32	31	44	88	88	1.6		3.8		
							300	27	420	98	63

NOTES:

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	PND-1	PND-2	UST	WLD-1	HWY	HWY (dupl)	SP-1	SP-2	QR-2	QR-1A	QR-1A (dupl)	T/W-1	T/W-2	T/W-3	T/W-5	T/W-6
Aluminum	161	160	101	4,540			540		196	138	133	20,800	5,350	8,520	5,860	4,450
Chromium					12							53	26	32	32	38
Barium												261	189	348	230	
Beryllium																
Cobalt																51
Copper												133	95	94	82	98
Iron	764	416	353	40,000	4,430	5,080	48,500	47,700	396	482	461	160,000	117,000	119,000	127,000	79,200
Nickel												51	48		73	58
Manganese	56	42	49	158	1,080	1,250	4,520	5,170	50	87	80	4,150	2,770	2,480	2,390	4,030
Zinc	45	21	16	73	379	166	18	12	16	27	12	18,000	2,350	14,500	4,690	9,960
Boron								161				621	448	379	590	200
Vandium																
Silver																
Sodium			4.1	9.4	11.1	11.1	9.9	53.4	11.3	11.8	12.0	99.2	72.3	71.5	190	48.2
Arsenic				28			56	210				310	310	400	1,130	640
Antimony																
Selenium																
Thallium																
Mercury					0.6											
Tin					33											58
Cadmium												1.8	1.9	6.4	1.5	
Lead				26								160	22	92	25	31

NOTES:

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- All results are parts per billion, except for sodium, which is parts per million.

DRAFT

	PND-1	PND-2	SP-1	SP-2	QR-1	QR-2	QR-3	QR-4	UST	WLD-2	T/W-1	T/W-2	T/W-3	T/W-5	T/W-6
Aluminum				390							34,000	4,400	860	10,000	16,000
Chromium											90			37	66
Barium			250	590							420	220	325	260	190
Beryllium															
Cobalt				220										45	160
Copper	58		61								210	100	99	130	160
Iron	440	330	130,000	550,000	190				56	110	196,000	100,000	86,000	140,000	198,000
Nickel											79			88	93
Manganese	83	37	3,500	13,000	35	150	40	30	45	58	4,700	2,400	3,100	4,000	12,000
Zinc	15	32,000		84	35	14			20	14	41,000	10,000	2,400	10,000	32,000
Boron	115		360	1,400							400	350	400	1,000	870
Vanadium															
Silver															
Sodium	2.3	2.1	142	85	7.5	8.0	8.7	8.5	12.3	15	76	71	79	199	70
Arsenic			1,400	5,600							1,800	2,400	110	1,800	4,000
Antimony															
Selenium			3.2										2.6		
Thallium			24	28							23	18	13	15	21
Mercury															
Tin															
Cadmium											6.8	1.4	2.1	1.7	1.2
Lead	5.6	6.5	5.4	14							230	50	61	110	180
TDS	NA	NA	NA	720	64	39	37	53	67	71	2,300	1,300	890	930	1,700
COD	NA	NA	NA	115	14	7.0	15	20	8.2	11	77	60	81	128	75
Chloride	NA	NA	NA	120	12	12	10	12	22	24	85	92	98	270	74
Alkalinity	NA	NA	NA	370	22	11	11	9.2	13	1.8	540	500	520	530	360

NOTES:

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- Results for Sodium, TDS, COD, Chloride, and Alkalinity are parts per million, all other results are parts per billion.

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia [redacted] - 703/557-2490

Sample Number A1521

1400W-1
June 1983

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: LAUCKS TESTING LABS., INC. Case No: 1833

Lab Sample I.D. Nos: 79616-096 QC Report No:

Multiply Detection Limits by 1 ☒ or 10 ☐ (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	10UFS
(22A)	59-50-7	p-chloro-m-cresol	10UFS
(24A)	95-57-8	2- chlorophenol	10UFS
(31A)	120-83-2	2,4-dichlorophenol	10UFS
(34A)	105-67-9	2,4-dimethylphenol	10UFS
(57A)	88-75-5	2-nitrophenol	20UFS
(58A)	100-02-7	4-nitrophenol	50UFS
(59A)	51-28-5	2,4-dinitrophenol	50UFS
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20UFS
(64A)	87-86-5	pentachlorophenol	10UFS
(65A)	108-95-2	phenol	10UFS

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10UFS
(5B)	92-87-5	benzidine	40UFS
(8B)	120-82-1	1,2,4-trichlorobenzene	10UFS
(9B)	118-74-1	hexachlorobenzene	10UFS
(12B)	67-72-1	hexachloroethane	10UFS
(18B)	111-44-4	bis(2-chloroethyl)ether	10UFS
(20B)	91-58-7	2-chloronaphthalene	10UFS
(25B)	95-50-1	1,2-dichlorobenzene	10UFS
(26B)	541-73-1	1,3-dichlorobenzene	10UFS
(27B)	106-46-7	1,4-dichlorobenzene	10UFS
(28B)	91-94-1	3,3'-dichlorobenzidine	20UFS
(35B)	121-14-2	2,4-dinitrotoluene	20UFS
(36B)	606-20-2	2,6-dinitrotoluene	20UFS
(37B)	122-66-7	1,2-diphenylhydrazine	20UFS
(39B)	206-44-0	fluoranthene	10UFS
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10UFS
(41B)	101-55-3	4-bromophenyl phenyl ether	10UFS
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20UFS
(43B)	111-91-1	bis (2-chloroethoxy) methane	20UFS
(52B)	87-68-3	hexachlorobutadiene	10UFS
(53B)	77-47-4	hexachlorocyclopentadiene	10UFS
(54B)	78-59-1	isophorone	10UFS
(55B)	91-20-3	naphthalene	10UFS
(56B)	98-95-3	nitrobenzene	10UFS
(62B)	86-30-6	N-nitrosodiphenylamine	10UFS
(63B)	621-64-7	N-nitrosodipropylamine	10UFS
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10UFS
(67B)	85-68-7	benzyl butyl phthalate	10UFS
(68B)	84-74-2	di-n-butyl phthalate	10UFS
(69B)	117-84-0	di-n-octyl phthalate	10UFS
(70B)	84-66-2	diethyl phthalate	10UFS
(71B)	131-11-3	dimethyl phthalate	10UFS
(72B)	56-55-3	benzo(a)anthracene	10UFS

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	20UFS
(74B)	205-99-2	benzo(b)fluoranthene	20UFS
(75B)	207-08-9	benzo(k)fluoranthene	20UFS
(76B)	218-01-9	chrysene	20UFS
(77B)	208-96-8	acenaphthylene	10UFS
(78B)	120-12-7	anthracene	10UFS
(79B)	191-24-2	benzo(ghi)perylene	20UFS
(80B)	86-73-7	fluorene	10UFS
(81B)	85-01-8	phenanthrene	10UFS
(82B)	53-70-3	dibenzo(a,h)anthracene	20UFS
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20UFS
(84B)	129-00-0	pyrene	10UFS

VOLATILES

(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5K ✓
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	trans-1,2-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5UA
	10061-01-05	cis-1,3-dichloropropene	5UA
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	J ND B
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	10UN
(50V)	75-71-8	dichlorodifluoromethane	10UN
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

HDaw=1
June 1983

Sample Number A1521

Laboratory Name: LAUCKS TESTING LABS., INC. Case No: 1833

Lab Sample I.D. Nos: 79616-096 QC Report No:

Multiply Detection Limits by 1 ☒ or 10 ☐ (Check Box for Appropriate Factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	.005UFS
(90P)	60-57-1	dieldrin	.005UFS
(91P)	57-74-9	chlordane	.050UFS
(92P)	50-29-3	4,4'-DDT	.010UFS
(93P)	72-55-9	4,4'-DDE	.005UFS
(94P)	72-54-8	4,4'-DDD	.010UFS
(95P)	115-29-7	α-endosulfan	.005UFS
(96P)	115-29-7	β-endosulfan	.005UFS
(97P)	1031-07-8	endosulfan sulfate	.010UFS
(98P)	72-20-8	endrin	.005UFS
(99P)	7421-93-4	endrin aldehyde	.010UFS
(100P)	76-44-8	heptachlor	.005UFS
(101P)	1024-57-3	heptachlor epoxide	.005UFS
(102P)	319-84-6	α-BHC	.005UFS

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	.005UFS
(104P)	319-86-8	δ-BHC	.005UFS
(105P)	58-89-9	γ-BHC (lindane)	.005UFS
(106P)	53469-21-9	PCB-1242	.050UFS
(107P)	11097-69-1	PCB-1254	.100UFS
(108P)	11104-28-2	PCB-1221	.100UFS
(109P)	11141-16-5	PCB-1232	.100UFS
(110P)	12672-29-6	PCB-1248	.100UFS
(111P)	11096-82-5	PCB-1260	.200UFS
(112P)	12674-11-2	PCB-1016	.050UFS
(113P)	8001-35-2	toxaphene	.050UFS

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	.005

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100UFS
95-48-7	2-methylphenol	5UFS
108-39-4	4-methylphenol	5UFS
95-95-4	2,4,5-trichlorophenol	100UFS

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	5UFS
100-51-6	benzyl alcohol	20UFS
106-47-8	4-chloroaniline	50UFS
132-64-9	dibenzofuran	10UFS
91-57-6	2-methylnaphthalene	20UFS
88-74-4	2-nitroaniline	100UFS
99-09-2	3-nitroaniline	100UFS
100-01-6	4-nitroaniline	100UFS

VOLATILES

CAS #			ug/l or ug/kg (circle one)
67-64-1	acetone	J	5K ✓
78-93-3	2-butanone		5U
75-15-0	carbondisulfide		1U
519-78-6	2-hexanone		5U
108-10-1	4-methyl-2-pentanone		5U
100-42-5	styrene		5U
108-05-4	vinyl acetate		5U
95-47-6	o-xylene		5K ✓

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 – Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

Sample No. MA905-1

Ltr Dow-1 June 1983

INORGANICS ANALYSIS DATA SHEET

LAB NAME Chemtech
LAB SAMPLE ID. NO. G2-63-01

CASE NO. 1833/SAS 621A
QC REPORT NO. 063

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	49200	10.	Zinc	325 J an
2.	Chromium	78	11.	Boron	<100
3.	Barium	350	12.	Vanadium	<200
4.	Beryllium	<5	13.	Silver	<10
5.	Cobalt	<50			
6.	Copper	127			
7.	Iron	59400			
8.	Nickel	53			
9.	Manganese	1980			

mg/L
Sodium 16.3

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	41.	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Cadmium	<1.
4.	Thallium	<10	8.	Lead	67.

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	~~Ammonia~~ NA	
2.	Cyanide	
3.	Sulfide	

COMMENTS:

7/19/83
Fred Buzzynski

U.S. ENVIRONMENTAL PROTECTION AGENCY-CLP Sample Management Office
P.O. Box 818, Alexandria, VA 22313 -- 703/557-2490

Incor Postsurvey Sheet

Sample Number A1370

LOW LEVEL LIQUID

LTD [redacted]

ORGANICS ANALYSIS DATA SHEET - Page 1

Laboratory Name Mead CompuChem
Lab Sample ID No. 38986

Case Number 1556
QC Report No. 122-199, 124-108, 126-121

Multiply Detection limits by 1 [X] or 10 [ ] or [ ] _____
(Check Box for Appropriate Factor)

ACID COMPOUNDS

PP#	CAS#		ug/l
(21A)	88-06-2	2,4,6-trichlorophenol	20U
(22A)	59-50-7	p-chloro-m-cresol	40U
(24A)	95-57-8	2-chlorophenol	20U
(31A)	122-83-2	2,4-dichlorophenol	20U
(34A)	105-67-9	2,4-dimethylphenol	20U
(57A)	88-75-5	2-nitrophenol	40U
(58A)	100-02-7	4-nitrophenol	200U
(59A)	51-88-5	2,4-dinitrophenol	100U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	40U
(64A)	87-86-5	pentachlorophenol	40U
(65A)	108-95-2	phenol	20U

(Non-Priority Pollutant Hazardous Substances)

	65-85-0	benzoic acid	200U
	95-48-7	2-methylphenol	20U
	108-39-4	4-methylphenol	20U
	95-95-4	2,4,5-trichlorophenol	200U

BASE-NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	20U
(5B)	92-87-5	benzidine	80U
(8B)	120-82-1	1,2,4-trichlorobenzene	20U
(9B)	118-74-1	hexachlorobenzene	20U
(12B)	67-72-1	hexachloroethane	20U
(18B)	111-44-4	bis(2-chloroethyl)ether	20U
(20B)	91-58-7	2-chloronaphthalene	20U
(25B)	95-50-1	1,2-dichlorobenzene	20U
(26B)	541-73-1	1,3-dichlorobenzene	20U
(27B)	106-46-7	1,4-dichlorobenzene	20U
(28B)	91-94-1	3,3'-dichlorobenzidine	40U
(35B)	121-14-2	2,4-dinitrotoluene	40U
(36B)	606-20-2	2,6-dinitrotoluene	40U
(37B)	122-66-7	1,2-diphenylhydrazine (as azobenzene)	40U
(39B)	206-44-0	fluoranthene	20U
(40B)	7005-72-3	4-chlorophenyl phenylether	20U
(41B)	101-55-3	4-bromophenyl phenyl ether	20U

BASE/NEUTRAL COMPOUNDS

PP#	CAS#		ug/l
(42B)	39638-32-9	bis-(2-chloroisopropyl)ether	40U
(43B)	11--91-1	bis-(2-chloroethoxy)methane	40U
(52B)	87-68-3	hexachlorobutadiene	20U
(53B)	77-47-4	hexachlorocyclopentadiene	20U
(54B)	78-59-1	isophorone	20U
(55B)	91-20-3	naphthalene	20U
(56B)	98-95-3	nitrobenzene	20U
(62B)	86-30-6	N-nitrosodiphenylamine	20U
(63B)	621-64-7	N-nitrosodi-n-propylamine	40U
(66B)	117-81-7	bis(2-ethylhexyl)phthalate	20U
(67B)	85-68-7	butyl benzyl phthalate	20U
(68B)	84-74-2	di-n-butyl phthalate	20U
(69B)	117-84-0	di-n-octyl phthalate	20U
(70B)	84-66-2	diethyl phthalate	20U
(71B)	131-11-3	dimethyl phthalate	20U
(72B)	56-55-3	benzo(a)anthracene	40U
(73B)	50-33-8	benzo(a)pyrene	40U
(74B)	205-99-2	benzo(b)fluoranthene	40U
(75B)	207-08-9	benzo(k)fluoranthene	40U
(76B)	318-01-9	chrysene	20U
(77B)	208-96-8	acenaphthylene	20U
(78B)	120-12-7	anthracene	20U
(79B)	181-24-2	benzo(ghi)perylene	40U
(80B)	86-73-7	fluorene	20U
(81B)	85-01-8	phenanthrene	20U
(82B)	53-70-3	dibenzo(a,h)anthracene	40U
(83B)	183-39-5	indeno(1,2,3-cd)pyrene	40U
(84B)	129-00-0	pyrene	20U

(Non-Priority Pollutant Hazardous Substances)

	62-53-3	aniline	20U
	100-51-6	benzyl alcohol	40U
	106-47-8	4-chloroaniline	100U
	132-64-9	dibenzofuran	20U
	91-57-6	2-methylnaphthalene	40U
	88-74-4	2-nitroaniline	200U
	99-09-2	3-nitroaniline	200U
	100-01-6	4-nitroaniline	200U

PRESUMABLY QR-2 collected 3/83

Sample Number
A1370

ORGANICS ANALYSIS DATA SHEET - Page 2 LOW LEVEL LIQUID

Laboratory Name Mead CompuChem
Lab Sample ID No. 28986

Case Number 1556
QC Report No. 122-199, 124-108, 126-121

Multiply Detection limits by 1 ☑ or 10 ☐ or ☐ _____
(Check Box for Appropriate Factor)

VOLATILES

PP#	CAS#		ug/l
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	5U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	5U
(16V)	75-00-3	chloroethane	5U
(19V)	110-75-8	2-chloroethylvinyl ether	5U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	1,2-trans-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	5U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis,1,3-dichloropropene	10U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	5U
(46V)	74-83-9	bromomethane	5U
(47V)	75-25-2	bromoform	5U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	5U
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	5U

(Non-Priority Pollutant Hazardous Substances)

67-64-1	acetone	100U
78-93-3	2-butanone	200U
75-15-0	carbondisulfide	10U
519-78-6	2-hexanone	100U
108-10-1	4-methyl-2-pentanone	100U
100-42-5	styrene	5U
108-05-4	vinyl acetate	10U
95-47-6	o-xylene	5U

All volatiles values are "J" = Approximated.
Samples run after hold times expired on

Sample Number A13-70

ORGANICS ANALYSIS DATA SHEET - Page 3

LOW LEVEL SOLID

Laboratory Name Mead CompuChem

Lab Sample ID No. 2B986

Case Number 1536

QC Report No. 122-199, 124-108, 126-121

Multiply all Values and Detection Limits by 1 [✓] or 10 [ ] or [ ] _____
(Check Box for Appropriate Factor)

PESTICIDES

PP#	CAS#		ug/kg
(39P)	309-00-2	aldrin	4.0U
(90P)	60-57-1	dieldrin	4.0U
(91P)	57-74-9	chlordane	4.0U
(92P)	50-29-3	4,4'-DDT	4.0U
(93P)	72-55-9	4,4'-DDE	4.0U
(94P)	72-54-8	4,4'-DDD	4.0U
(95P)	115-29-7	endosulfan I	4.0U
(96P)	115-29-7	endosulfan II	4.0U
(97P)	1031-07-8	endosulfan sulfate	4.0U
(98P)	78-20-8	endrin	4.0U
(99P)	7421-43-4	endrin aldehyde	4.0U
(100P)	76-44-8	heptachlor	4.0U
(101P)	1024-57-3	heptachlor epoxide	4.0U
(102P)	319-84-6	BHC-Alpha	4.0U
(103P)	319-85-7	BHC-Beta	4.0U
(104P)	319-86-8	BHC-Delta	4.0U
(105P)	58-89-9	BHC-Gamma	4.0U
(106P)	53469-21-9	PCB-1242	4.0U
(107P)	11097-69-7	PCB-1254	4.0U
(108P)	11104-28-2	PCB-1221	4.0U
(109P)	11141-16-5	PCB-1232	4.0U
(110P)	12672-29-6	PCB-1248	4.0U
(111P)	11096-82-5	PCB-1260	4.0U
(112P)	12674-11-2	PCB-1016	4.0U
(113P)	8001-35-2	toxaphene	4.0U

DIOXINS

			ug/kg
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.080U

U.S. ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

Sample No.
MA 8947

APPROVED

INORGANICS ANALYSIS DATA SHEET

LABORATORY NAME CAL LABS
CASE NO. ~~JS40~~ 1556/437A
LAB SAMPLE ID. NO. 52525
QC REPORT NO. 84

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	<200	11.	Manganese	50
2.	Chromium	<10	12.	Zinc	14
3.	Barium	<100	13.	Boron	<100
4.	Beryllium	<5	14.	Vanadium	<200
5.	Cadmium	<1			
6.	Cobalt	<50			
7.	Copper	<50			mg/l or mg/kg (circle one)
8.	Iron	<50	15.	Calcium	
9.	Lead	<5	16.	Magnesium	
10.	Nickel	<40	17.	Sodium	8.0

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	<10	5.	Mercury	0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Silver	<10
4.	Thallium	<10			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	
3.	Sulfide	

COMMENTS: low water

TDS 39 mg/L Cl⁻ 12 mg/L
pH 7.0 Alk 11.

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 2[illegible] - 703/557-2490

Sample Number A1550

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: LAUCKS TESTING LABS., INC. Case No: 1833 Quinapoxet-R

Lab Sample I.D. No: 79616-126 QC Report No:

Multiply Detection Limits by 1 ☒ or 10 ☐ (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	10UFS
(22A)	59-50-7	p-chloro-m-cresol	10UFS
(24A)	95-57-8	2- chlorophenol	10UFS
(31A)	120-83-2	2,4-dichlorophenol	10UFS
(34A)	105-67-9	2,4-dimethylphenol	10UFS
(57A)	88-75-5	2- nitrophenol	20UFS
(58A)	100-02-7	4-nitrophenol	50UFS
(59A)	51-28-5	2,4-dinitrophenol	50UFS
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20UFS
(64A)	87-86-5	pentachlorophenol	10UFS
(65A)	108-95-2	phenol	10UFS

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10UFS
(5B)	92-87-5	benzidine	40UFS
(8B)	120-82-1	1,2,4-trichlorobenzene	10UFS
(9B)	118-74-1	hexachlorobenzene	10UFS
(12B)	67-72-1	hexachloroethane	10UFS
(18B)	111-44-4	bis(2-chloroethyl)ether	10UFS
(20B)	91-58-7	2-chloronaphthalene	10UFS
(25B)	95-50-1	1,2-dichlorobenzene	10UFS
(26B)	541-73-1	1,3-dichlorobenzene	10UFS
(27B)	106-46-7	1,4-dichlorobenzene	10UFS
(28B)	91-94-1	3,3'-dichlorobenzidine	20UFS
(35B)	121-14-2	2,4-dinitrotoluene	20UFS
(36B)	606-20-2	2,6-dinitrotoluene	20UFS
(37B)	122-66-7	1,2-diphenylhydrazine	20UFS
(39B)	206-44-0	fluoranthene	10UFS
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10UFS
(41B)	101-55-3	4-bromophenyl phenyl ether	10UFS
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20UFS
(43B)	111-91-1	bis (2-chloroethoxy) methane	20UFS
(52B)	87-68-3	hexachlorobutadiene	10UFS
(53B)	77-47-4	hexachlorocyclopentadiene	10UFS
(54B)	78-59-1	isophorone	10UFS
(55B)	91-20-3	naphthalene	10UFS
(56B)	98-95-3	nitrobenzene	10UFS
(62B)	86-30-6	N-nitrosodiphenylamine	10UFS
(63B)	621-64-7	N-nitrosodipropylamine	10UFS
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10UFS
(67B)	85-68-7	benzyl butyl phthalate	10UFS
(68B)	84-74-2	di-n-butyl phthalate	10UFS
(69B)	117-84-0	di-n-octyl phthalate	10UFS
(70B)	84-66-2	diethyl phthalate	10UFS
(71B)	131-11-3	dimethyl phthalate	10UFS
(72B)	56-55-3	benzo(a)anthracene	10UFS

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	20UFS
(74B)	205-99-2	benzo(b)fluoranthene	20UFS
(75B)	207-08-9	benzo(k)fluoranthene	20UFS
(76B)	218-01-9	chrysene	20UFS
(77B)	208-96-8	acenaphthylene	10UFS
(78B)	120-12-7	anthracene	10UFS
(79B)	191-24-2	benzo(ghi)perylene	20UFS
(80B)	86-73-7	fluorene	10UFS
(81B)	85-01-8	phenanthrene	10UFS
(82B)	53-70-3	dibenzo(a,h)anthracene	20UFS
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20UFS
(84B)	129-00-0	pyrene	10UFS

VOLATILES

(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	trans-1,2-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5UA
	10061-01-05	cis-1,3-dichloropropene	5UA
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	J ND B
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	10UN
(50V)	75-71-8	dichlorodifluoromethane	10UN
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U

PRESUMABLY QR-2 collected 4/83

Sample Number A1550

Laboratory Name: LAUCKS TESTING LABS., INC. Case No: 1833

Lab Sample I.D. No: 74616-126 QC Report No:

Multiply Detection Limits by 1 ☒ or 10 ☐ (Check Box for Appropriate Factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	.005UFS
(90P)	60-57-1	dieldrin	.005UFS
(91P)	57-74-9	chlordane	.050UFS
(92P)	50-29-3	4,4'-DDT	.010UFS
(93P)	72-55-9	4,4'-DDE	.005UFS
(94P)	72-54-8	4,4'-DDD	.010UFS
(95P)	115-29-7	α-endosulfan	.005UFS
(96P)	115-29-7	β-endosulfan	.005UFS
(97P)	1031-07-8	endosulfan sulfate	.010UFS
(98P)	72-20-8	endrin	.005UFS
(99P)	7421-93-4	endrin aldehyde	.010UFS
(100P)	76-44-8	heptachlor	.005UFS
(101P)	1024-57-3	heptachlor epoxide	.005UFS
(102P)	319-84-6	α-BHC	.005UFS

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	.005UFS
(104P)	319-86-8	δ-BHC	.005UFS
(105P)	58-89-9	γ-BHC (lindane)	.005UFS
(106P)	53469-21-9	PCB-1242	.050UFS
(107P)	11097-69-1	PCB-1254	.100UFS
(108P)	11104-28-2	PCB-1221	.100UFS
(109P)	11141-16-5	PCB-1232	.100UFS
(110P)	12672-29-6	PCB-1248	.100UFS
(111P)	11096-82-5	PCB-1260	.200UFS
(112P)	12674-11-2	PCB-1016	.050UFS
(113P)	8001-35-2	toxaphene	.050UFS

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	.005

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100UFS
95-48-7	2-methylphenol	5UFS
108-39-4	4-methylphenol	5UFS
95-95-4	2,4,5-trichlorophenol	100UFS

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	5UFS
100-51-6	benzyl alcohol	20UFS
106-47-8	4-chloroaniline	50UFS
132-64-9	dibenzofuran	10UFS
91-57-6	2-methylnaphthalene	20UFS
88-74-4	2-nitroaniline	100UFS
99-09-2	3-nitroaniline	100UFS
100-01-6	4-nitroaniline	100UFS

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	J 5U
78-93-3	2-butanone	5U
75-15-0	carbondisulfide	1U
519-78-6	2-hexanone	5U
108-10-1	4-methyl-2-pentanone	5U
100-42-5	styrene	5U
108-05-4	vinyl acetate	5U
95-47-6	o-xylene	5U

4/8

US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 -- Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

Sample No.
MA 9090

SW-9
Quinapyrat

INORGANICS ANALYSIS DATA SHEET

LAB NAME Chemtech
LAB SAMPLE ID. NO. G2-63-40

CASE NO. 1833/SAS 621A
QC REPORT NO. 063

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Aluminum	196
2.	Chromium	<10
3.	Barium	<100
4.	Beryllium	<5
5.	Cobalt	<50
6.	Copper	<50
7.	Iron	396
8.	Nickel	<40
9.	Manganese	50
10.	Zinc	16 J an
11.	Boron	<100
12.	Vanadium	<200
13.	Silver	<10

mg/l
Sodium 11.3

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Arsenic	<10
2.	Antimony	<20
3.	Selenium	<2
4.	Thallium	<10
5.	Mercury	<0.2
6.	Tin	<20
7.	Cadmium	<1
8.	Lead	<5

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Ammonia	NA
2.	~~Cyanide~~	
3.	~~Sulfide~~	

COMMENTS:

7/19/83
Frank Bruzzynski